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Cancer Commission of Harvard University

TENTH ANNUAL REPORT

OF THE

COLLIS P. HUNTINGTON MEMORIAL HOSPITAL
FOR CANCER RESEARCH

AND OF THE

LABORATORIES

OF THE

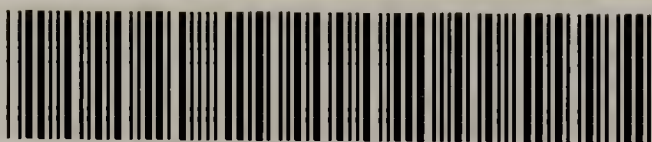
CANCER COMMISSION OF HARVARD UNIVERSITY

1921-1922

(FOR THE YEAR ENDING JUNE 30, 1922)

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THE COLLIS P. HUNTINGTON MEMORIAL HOSPITAL AND THE NEW LABORATORY BUILDING, 1921.
COOLIDGE & SHATTUCK, ARCHITECTS.

Cancer Commission of Harvard University

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THE
CANCER COMMISSION OF HARVARD UNIVERSITY
FOUNDED BY CAROLINE BREWER CROFT

JUNE 16, 1899

HENRY P. WALCOTT, M.D., *Chairman*

J. COLLINS WARREN, M.D. } For the Caroline Brewer Croft Fund.
M. DOUGLAS FLATTERY }
HENRY P. WALCOTT, M.D. } For the Corporation of Harvard College.
EDWARD H. BRADFORD, M.D. }
S. BURT WOLBACH, M.D. } For the Harvard Medical School.
E. E. TYZZER, M.D. }
ROBERT B. GREENOUGH, M.D., *Director*.
*ROGER PIERCE, *Treasurer*.
CHANNING C. SIMMONS, M.D., *Secretary*.
WILLIAM DUANE, PH.D., *Research Fellow in Physics*.
WILLIAM T. BOVIE, PH.D., *Research Fellow in Bio-Physics*.
HENRY LYMAN, M.D., *Research Fellow in Chemistry*.
ERNEST W. GOODPASTURE, M.D., *Research Fellow in Pathology*.
JAMES H. WRIGHT, M.D., *Pathologist in Charge of Diagnosis Service*.
STUART MUDD, M.D., *Assistant Research Fellow in Bio-Physics*.

COLLIS P. HUNTINGTON MEMORIAL HOSPITAL
FOR CANCER RESEARCH

ROBERT B. GREENOUGH, M.D., *Surgeon in Charge*.
CHANNING C. SIMMONS, M.D., *Surgeon*.
HENRY A. CHRISTIAN, M.D., *Consulting Physician*.
GEORGE R. MINOT, M.D., *Physician*.
D. CROSBY GREENE, M.D., *Laryngologist*.
LAWRIE B. MORRISON, M.D., *Consulting Roentgenologist*.
GEORGE A. LELAND, JR., M.D., *Assistant Surgeon*.
GEORGE GILBERT SMITH, M.D., *Assistant Surgeon*.
ERNEST M. DALAND, M.D., *Surgeon to Out-Patients*.
LELAND S. MCKITTRICK, M.D., *Surgeon to Out-Patients*.
T. E. BUCKMAN, M.D., *Assistant Physician*.
ROY C. GILES, M.D., *Roentgenologist*.
J. S. HODGSON, M.D., *Surgical Assistant*.
E. T. SAEGER, M.D., *Surgical Assistant*.
W. L. DAVIS, M.D., *Resident Surgeon*.
DONALD S. KING, M.D., *Resident Physician*.
JAMES HITCHCOCK, M.D., *Resident Physician*.
R. L. MASON, *House Officer*.
P. W. VESTAL, *House Officer*.
ANNA L. GIBSON, R.N., *Matron*.
MYRA B. CONOVER, R.N., *Assistant Matron*.

*Mr. Charles Jackson appointed Treasurer, September 1922.

REPORT OF THE CHAIRMAN
TO THE
CANCER COMMISSION OF HARVARD UNIVERSITY

GENTLEMEN: I submit herewith the reports of the various heads of departments of the staff of the Cancer Commission of Harvard University, for the fiscal year ending June 30, 1922.

The most notable event which marks the year's work of the Commission is the completion of the new laboratory building, adjoining the Collis P. Huntington Memorial Hospital, and its designation by the President and Fellows of Harvard College as the John Collins Warren Laboratory, "in grateful recognition of his valuable services to the University." On May 15, 1922, this laboratory was opened with appropriate exercises, which included addresses by Dr. Henry P. Walcott, Chairman of the Cancer Commission; Dr. David L. Edsall, Dean of the Harvard Medical School; and Dr. Francis Carter Wood, Director of the Cancer Research Institute of Columbia University, New York. The occupancy of this building by the laboratory departments of the Commission and the installation there of the new high-voltage X-ray apparatus accomplish a purpose long cherished by the former Chairman of the Commission, Doctor Warren, and one for which he has striven unceasingly and with abiding faith, enthusiasm and success.

To the many individuals who aided us in obtaining the necessary funds for the erection of this building I would express the appreciation and gratitude of the Commission, and especially to Mr. Joseph Lee, Judge Frederick P. Cabot, Mr. Charles C. Jackson, Mr. M. Douglas Flattery, and to the officers of the John Hancock Mutual Life Insurance Company of Boston; without whose help the completion of the building would have been seriously delayed.

During the past year Prof. W. T. Councilman resigned as a member of the Cancer Commission on retiring from his active work in the Medical School; and Dr. J. Collins Warren resigned his duties as Chairman of the Commission although continuing to serve as a member of the Commission. Dr. S. B. Wolbach, Professor of Pathology, has been appointed by the President

and Fellows of Harvard College, a member of the Commission in place of Doctor Councilman.

The completion of the new laboratory building opens up new fields for investigation and for service to the community and it is greatly to be desired that the financial support of the work of the Commission may be continued and augmented, so that no promising line of work looking to the control and cure of cancer may be neglected.

The work of the different departments is described in the accompanying reports.

Respectfully,

HENRY P. WALCOTT, *Chairman.*

July 1, 1922.

REPORT OF THE DIRECTOR
TO THE
CANCER COMMISSION OF HARVARD UNIVERSITY

GENTLEMEN: I have the honor to submit the following report upon the work of the Cancer Commission of Harvard University for the fiscal year ending June 30, 1922.

The work of the hospital and of the laboratories has continued during the year, the most notable events being the completion and occupancy of the new laboratory building, the vote of the President and Fellows of Harvard College to name the building after Dr. John Collins Warren "in grateful recognition of his valuable services to the University," and the formal opening of the laboratory on May 15, 1922, with addresses by Dr. David L. Edsall, Dean of the Harvard Medical School; Dr. Henry P. Walcott, Chairman of the Cancer Commission of Harvard University; and Dr. Francis Carter Wood, Director of the Cancer Research Institute of the College of Physicians and Surgeons, Columbia University.

In January, 1922, Prof. W. T. Councilman resigned his position as a member of the Cancer Commission of Harvard University. Dr. J. C. Warren also sent in his resignation of the duties of Chairman of the Cancer Commission, although retaining his position as a member of the Commission and a Trustee of the Caroline Brewer Croft Fund. Dr. Henry P. Walcott was appointed by the President and Fellows of Harvard College in February, 1922, as Chairman of the Commission. Mr. Roger Pierce has recently expressed a desire to be relieved of his duties as Treasurer, but has consented to serve until his successor is appointed.

The report of the fiscal year 1920-1921 was completed in February, and about one thousand copies have been issued on the regular mailing list. In addition to the usual reports including those of the certified accountants, Messrs. Cooley and Marvin, a budget account of the financial condition of the Commission was included, together with a review of the work of the Commission from its beginning in 1899 until the present time.

The work of the Commission for 1921-1922 will be discussed under the following subdivisions:

- (1) General considerations.
- (2) Laboratories.
- (3) Hospital.
- (4) State Diagnosis Service.
- (5) New Laboratory Building.
- (6) Finances.
- (7) Programme for further work.

I. General Considerations

With the occupancy of the new building and the installation of the high-voltage X-ray apparatus devised by Doctor Duane a new line of work opens for the Commission which promises results of the greatest importance. It is hoped, however, that the present work of the Commission need not be curtailed on this account. Some expansion of the personnel of the hospital will be needed to provide for the effective operation of the new apparatus, and a most important field for investigation will be provided by the opportunity thus afforded for the study of the constitutional as well as the local effects of X-rays of minimum wave-length.

II. Laboratories

BIO-PHYSICS — During the past year Doctor Duane has spent most of his available time at work with the new X-ray apparatus, improving its construction and studying especially methods of determining the amount and quality of radiation obtained. Doctor Duane has had an opportunity to compare and calibrate his own measuring apparatus with that of one of the high-voltage German X-ray machines recently installed in this country. It may be said that a comparison of the effective radiation of the German machine and that of Doctor Duane's apparatus suggests strongly that an X-ray tube operated on a constant voltage such as is given by the Duane machine is much superior. A careful study of the measures for the protection of patients and operators, both from electrical contact and from X-ray exposure, has also been made, and rigid rules established for the operation of the apparatus. Doctor Duane has given instruction in the regular undergraduate courses in

Physics in Harvard College and has had a number of special research students working with him during the year. He has also continued to supervise the radium apparatus and the preparation of the radium emanation for employment in the hospital.

The work of Doctor Bovie's laboratory during the past year has continued as in the last report. A number of pieces of research work have been completed and the material has been prepared for publication. The process of moving Doctor Bovie's apparatus from the Medical School buildings to the new laboratory has been successfully accomplished, and a number of applications for opportunity to work in these laboratories have been received. Doctor Bovie has also continued, now for the third year, his course in bio-physics in the undergraduate department of Harvard College. This course has been somewhat modified in its scope, and represents a new departure in instruction in which Doctor Bovie must be considered a pioneer. He has been assisted in his work by Dr. Stuart Mudd, holding the Edward Hickling Bradford Fellowship in the Medical School, and by Mr. Walter Hughes, who has worked faithfully as a voluntary assistant in Doctor Bovie's laboratory. For the coming year Doctor Bovie has also offered a fourth-year elective course in bio-physics, in the Harvard Medical School, for students who may be qualified to pursue this subject.

CHEMICAL LABORATORY — With the completion of the new building Doctor Lyman has set up his apparatus in the two rooms devoted to chemistry, and has prepared the way for such chemical investigations as may be considered profitable in connection with the work of the Commission. Before the completion of the new laboratory Doctor Lyman continued his work in the bio-chemical laboratory of the Harvard Medical School.

PATHOLOGY — Dr. E. W. Goodpasture has been in the Philippines on leave of absence since July, 1921. His work for the Commission has thus been interrupted and, as Doctor Goodpasture has now accepted a position elsewhere, it will have to be abandoned altogether, unless authority is given for the appointment of another representative of this department.

Dr. Lawrence W. Smith, acting as a volunteer, has rendered valuable service to the Commission during Doctor Goodpasture's

absence in performing autopsies, and Dr. J. Homer Wright, the pathologist in charge of the State Diagnosis Service, has taken care of the surgical material from the hospital. It is recommended that an assistant pathologist be appointed to work with Dr. Wright and to carry on the pathological investigations contemplated for the coming year.

III. Hospital

The Huntington Hospital has been in active operation throughout the year, and 1,636 new patients have been received in the twelve months which have elapsed, as compared with 1,420 in the twelve months of 1920-1921. The rooms provided for out-patient cases in the new building have contributed greatly to the comfort and convenience of handling the clinic.

The general policy of dealing with patients has not been changed, and groups of cases have been cared for and studied intensively by different members of the staff with satisfactory results. The assignment of special groups of cases has been as follows:

Leukemias and blood diseases, Drs. Minot, Buckman, and Hitchcock; Lymphoma, Drs. Simmons, Minot, and McKittrick; Cancer of the mouth, Dr. Simmons; Cancer of the uterus, Drs. Leland and Hodgson; Genito-Urinary cases, Dr. Smith; Cancer of the nose, throat and esophagus, Drs. Greene and Herman. Dr. Herman has given his services as a volunteer most faithfully during the past two years.

The work of the Out-Patient Department has been chiefly in the hands of Dr. C. C. Simmons, Dr. E. M. Daland, and Dr. L. S. McKittrick. Dr. E. T. Saeger, surgical assistant and former resident, was incapacitated by illness for four months during the winter, but has now recovered and returned to continue his work as anesthetist.

The two student House Officers appointed in the summer of 1920 as third-year students in the Medical School, R. L. Mason and P. W. Vestal, completed their year's term of service in July, 1921, and at their earnest desire were continued in residence during their fourth year in the Medical School. Two new House Officers from next year's third-year class have just been appointed to begin service in July and September, 1922.

During the past year a number of conferences were held with the Massachusetts General Hospital; a satisfactory agreement was arrived at, and two hundred and fifty milligrammes of radium belonging to the Massachusetts General Hospital were received by the Commission and added to the one thousand milligrammes belonging to the Commission, with the understanding that the emanation derived from the Massachusetts General Hospital's radium should be collected, purified, and delivered in tubes to the accredited agents of the Massachusetts General Hospital, in order that effective radium treatment in certain classes of cases of cancer might be inaugurated at that hospital. It is evident that the Cancer Commission can aid materially in the development of effective radium treatment in other reputable institutions by this arrangement, and thereby permit its own resources to be used more freely for further investigation.

For the conduct of the regular work of the hospital, no material change in method or personnel is recommended at present. If at any time the resources of the Commission are sufficient to permit an increase of salaries for the clinical members of the staff, such an advance will be advised as the salaries paid are quite inadequate for the service rendered. These conditions, however, are not remediable at the present time.

The opening of the new X-ray department of course will make necessary additional expense — an expense, however, which we hope can be met, in part at least, by increased income derived from X-ray treatments. An appropriation of \$3,600 for nurses and technicians' service in connection with the X-ray department is included in the budget for the coming year.

With the opening of the new X-ray department, however, an opportunity is presented such as has been rarely afforded in any other institution, for the intensive investigation of the constitutional effects of deep X-ray therapy. This subject has been discussed at length by the staff, and it is their unanimous opinion that this opportunity should be grasped, and that a well coördinated investigation of this problem should be undertaken. To this end the Director would ask for an appropriation of \$5,000 a year — a sum to be secured, if necessary, by special solicitation, and for one, two, or three years, as may be needed, to be expended for the employment of a suitably

trained clinical laboratory investigator and assistants, and for the purchase of necessary apparatus. Toward the solution of this problem the medical and surgical departments, as well as the X-ray department, and the laboratories of bio-physics, pathology, and chemistry, offer their fullest coöperation and support.

Before leaving the subject of the hospital work the Director would express his appreciation of the industry and devotion of the members of the clinical staff of the hospital, who have given so freely of their time and interest to carrying on the routine work of the institution, studying and recording the end-results of treatment, and developing improved and more effective methods of dealing with cancer in its different situations.

A further tribute is due to the Superintendent of the hospital, Miss Gibson, and her assistant, Miss Conover, for the untiring devotion and ingenuity they have shown in conducting the hospital efficiently under the strain of the strictest economy. It is to their efforts, in great part, that a more favorable financial condition exists than it was even hoped to show a year ago

IV. State Diagnosis Service

The Free Diagnosis Service maintained for and at the expense of the State of Massachusetts continues to increase in patronage. Exclusive of the material from the Huntington Hospital, 1,499 specimens have been examined during the present fiscal year. The specimens come chiefly from the smaller towns and municipal hospitals outside of the metropolitan district. There can be little doubt that most of this material failed to receive proper pathological study before this service was inaugurated. The material as now handled is cut by the frozen section method; but the value of this rich supply would be much increased for scientific and teaching purposes if another technical assistant could be provided to prepare a portion of the material by the paraffin method, whereby its permanent usefulness would be increased, and a recommendation has been made for an appropriation for this purpose.

V. New Laboratory Building

The total amount obtained by subscription for the new laboratory building, including accumulated interest, was

\$170,946.25 (June 30, 1922). On September 8, 1921, Mr. Whitney, the contractor, stated that his estimate for the general contract was \$132,000. This was exclusive of architect's commissions, heating and electric installation, in round numbers \$27,000 — a total of \$159,000. On June 30, 1922, there had been paid out by the Treasurer in 1920-1921 and 1921-1922:

General contract.....	\$153,034.44
Architects and engineers.....	12,347.06
Electrical work.....	5,453.98
Heating and ventilation.....	11,765.96
Emergency water.....	508.00
Temporary heat.....	688.02
Refrigeration.....	476.00
	<hr/>
	\$184,273.46*

*This includes one item of \$10.09 paid after June 30, which reduces the amount actually paid out to \$184,262.37.

The increase above the general contractor's estimate is due, in part, to the cost of alterations and additions of which the most extensive was the provision of a lead lining to the new X-ray room. Many other changes were required, however, in spite of the fact that individual conferences between the architects and engineers on the one hand, and the heads of the different laboratories on the other, were procured.

The building thus cost \$13,316.12 more than the sum subscribed to pay for it. A part of this excess may perhaps be considered as equipment, as at least \$6,000 of the whole went to the general contractor for furniture and equipment such as cables, bookcases, and apparatus for the laboratories, articles commonly regarded as furniture, but forming in this instance a part of the general contract. A further sum of about \$14,592.94, however, has been spent from the current funds of the Commission for furniture, lighting and apparatus, and the new X-ray apparatus:

New X-ray equipment.....	\$7,719.53
Warren Laboratory and apparatus.....	6,873.41
	<hr/>
	\$14,592.94

The deficit of \$13,316.12 in the construction account has been covered by a special appropriation made by the President and Fellows from the DeLamar fund for this purpose. The

equipment item of \$14,592.94 has been partly charged against current funds and the balance of \$7,396.51 has been charged against the capital of the endowment fund.

Two carved oak panels have been set up in the vestibule of the Collis P. Huntington Memorial Hospital, recording on one side the permanent funds of the Commission and on the other the free beds, including the complimentary free bed of the John Hancock Mutual Life Insurance Company, which has been established in the hospital (see Plates) by vote of the Cancer Commission.

VI. Finances

The total operating expenses of the hospital and laboratories of the Cancer Commission in 1920-1921 (last year), as stated in the last report, exceeded the available income by \$14,046.34. This sum was recorded as a deficit and was met by the application of funds carried in the "endowment" fund, but available for this purpose.

As a result of the operations of the present year (1921-1922) a surplus of \$7,732.23 was obtained, which would go to diminish this deficit by more than one half. This conversion of a deficit of last year into a surplus this year was made possible by a decrease of about \$2,500 in expenditure, and by an increase of the amounts obtained from annual subscriptions and from hospital revenue.

The funds of the Commission have, however, been diminished this year by the amount paid out for the construction of the new laboratory building (\$149,208.07 in 1921-1922) and by the expenditure for furniture, equipment and apparatus for the new laboratory, including the new X-ray machine, amounting to \$14,592.94.

A further capital charge of \$1,552.21 for permanent equipment for the hospital was also required, so that in spite of gifts for construction and equipment amounting to \$30,853.31, a net diminution in capital is recorded amounting to \$121,574.99.

VII. Programme for Further Work

In 1922-1923, it is recommended that the work of the laboratories and of the hospital be continued as in the past, and

THE CANCER COMMISSION
OF HARVARD UNIVERSITY
FOUNDED BY
CAROLINE BREWER CROFT
1899

PERMANENT FUNDS

L. JEFFERSON COOLIDGE

CAROLINE BREWER CROFT

WILLIAM ENDICOTT

LAWRENCE CARTER FENNO
MEMORIAL

MARIA D. LOCKWOOD
MEMORIAL

JAMES T. WING MIARS

GEORGE VON L. MEYER

JULIA M. MOSLEY

DUDLEY B. FAY MEMORIAL

CARVED OAK PANEL PLACED IN THE VESTIBULE OF THE COLLIS P. HUNTINGTON
MEMORIAL HOSPITAL RECORDING THE PERMANENT FUNDS OF THE
CANCER COMMISSION.

THE COLLIS P. HUNTINGTON
MEMORIAL HOSPITAL

ESTABLISHED 1912

FREE BEDS

FRANCIS BARTLETT

LAWRENCE CARTERET PENNO

JOHN HANCOCK MUTUAL
LIFE INSURANCE COMPANY

FRANKLIN H. HOOPER

AMOS LAWRENCE HOPKINS

CLARA ENDICOTT PAYSON
MEMORIAL

THE EUGENE TOMPKINS
MEMORIAL

CARVED OAK PANEL PLACED IN THE VESTIBULE OF THE COLLIS P. HUNTINGTON
MEMORIAL HOSPITAL RECORDING THE FREE BEDS.

the development of the science of bio-physics and of its practical application to the study and treatment of cancer remain the chief activity of this Commission. With the completion of the J. Collins Warren Laboratory, and the installation of the new X-ray machine, an opportunity is offered for the study of the effects of short wave-length X-ray therapy, which is unique. Advantage should be taken of this fact, and a well-organized and coördinated study of this subject be instituted. The detailed plans for such an investigation have been formulated and have been approved by the Commission.

R. B. GREENOUGH, *Director*.

July 1, 1922.

SUMMARY OF ACCOUNTS
CANCER COMMISSION OF HARVARD UNIVERSITY
1921-1922

<i>Expense</i>	1920-1921		1921-1922	
Total Hospital Departments...	\$70,268.03		\$62,850.07	
Total Laboratory Departments.	14,670.02		18,951.31	
Operating Expenses.....		\$84,938.05		\$81,801.38
Salaries, Hospital.....			7,274.99	
Salaries, Laboratory.....			10,983.34	
Total Salaries.....		17,675.02		18,258.33
Total Expense.....		\$102,613.07		\$100,059.71
Equipment (Hospital).....	\$1,622.03		\$1,552.21	
Adjustment Account Items....	8,222.69		2,350.93	
Gain in Funds.....	91,993.39		4,176.08	
Gain, Cash on Hand.....	5,284.26			
Paid on New Laboratory.....	35,054.30		149,208.07	
Equipment (Laboratory).....			14,592.94	
		142,176.67		171,880.23
		\$244,789.74		\$271,939.94

<i>Receipts</i>				
Interest on Funds.....	\$20,784.84		\$19,761.06	
Gifts.....	3,980.00		2,980.00	
State of Massachusetts.....	1,506.95		3,750.00	
Annual Subscriptions.....	16,725.00		34,115.00	
Hospital Revenue.....	39,819.94		46,601.82	
Flattery Fund.....	750.00		584.06	
Available Annual.....		\$83,566.73		\$107,791.94
<i>Maintenance</i>				
In come Building Fund.....	\$2,036.96		\$787.39	
Endowment Fund.....	16,466.33		7,396.51	
Proctor Maintenance Fund....	5,000.00			
Research Laboratory Fund....	11,458.99			
Gifts for Salaries.....	1,250.00			
Gifts to Building Fund.....	115,025.00		16,750.00	
Gifts to Capital.....	9,845.01		4,025.00	
Accumulated Income.....	140.72		151.08	
Loss in Cash.....			3,367.34	
Building Fund.....			118,354.56	
DeLamar Fund.....			13,316.12	
		161,223.01		164,148.00
		\$244,789.74		\$271,939.94

REPORT OF THE SURGEON TO THE CANCER COMMISSION OF HARVARD UNIVERSITY

GENTLEMEN: The work of the Collis P. Huntington Memorial Hospital has been carried on during the fiscal year 1921-1922 by the following staff:

ROBERT B. GREENOUGH, M.D., *Surgeon in Charge.*
 CHANNING C. SIMMONS, M.D., *Surgeon.*
 HENRY A. CHRISTIAN, M.D., *Consulting Physician.*
 GEORGE R. MINOT, M.D., *Physician.*
 D. CROSBY GREENE, M.D., *Laryngologist.*
 LAWRIE B. MORRISON, M.D., *Consulting Roentgenologist.*
 GEORGE A. LELAND, JR., M.D., *Assistant Surgeon.*
 GEORGE GILBERT SMITH, M.D., *Assistant Surgeon.*
 ERNEST M. DALAND, M.D., *Surgeon to Out-Patients.*
 LELAND S. MCKITTRICK, M.D., *Surgeon to Out-Patients.*
 T. E. BUCKMAN, M.D., *Assistant Physician.*
 ROY C. GILES, M.D., *Roentgenologist.*
 J. S. HODGSON, M.D., *Surgical Assistant.*
 E. T. SAEGER, M.D., *Surgical Assistant.*
 W. L. DAVIS, M.D., *Resident Surgeon.*
 DONALD S. KING, M.D., *Resident Physician.*
 JAMES HITCHCOCK, M.D., *Resident Physician.*
 R. L. MASON, *House Officer.*
 P. W. VESTAL, *House Officer.*
 ANNA L. GIBSON, R.N., *Matron.*
 MYRA B. CONOVER, R.N., *Assistant Matron.*

In addition to the above staff, members of many departments of the Harvard Medical School have been called upon to give advice in the capacity of consultants. We wish to express our thanks, especially to Drs. H. Cushing, G. S. Derby, A. M. Greenwood, E. W. Herman, R. B. Osgood, W. E. Paul, C. Morton Smith, and C. J. White. Dr. L. B. Morrison, as well as serving as Consulting Roentgenologist, has continued to care for the hospital patients requiring low voltage X-ray treatment or study, as we are not equipped to handle these cases. He has done this work without charge for patients financially in poor circumstances.

During the year, 1,636 new patients were examined at the hospital, an increase of 15.2 per cent over the number seen in the previous year. There were 7,331 out-patient visits and 5,466 in-patient days. The gradual increase in the number of patient examined may best be seen in the following table,

and it may be said that the hospital has nearly reached its capacity.

<i>Year</i>	<i>Number Patients</i>	<i>O.P.D. Visits</i>	<i>In-patient Days</i>	<i>Operating Expenses</i>	<i>Total Hospital Earnings</i>
1912-1913	190*	482	5,372	\$23,358.41	\$4,053.19
1913-1914	360*	1,634	5,529	26,115.62	4,607.72
1914-1915	509*	3,676	5,725	25,278.78	9,811.08
1915-1916	508†	3,833	6,118	26,888.36	13,078.08
1916-1917	571†	4,488	6,602	29,266.00	15,176.46
1917-1918	767†	4,286	6,660	29,791.39	16,006.98
1918-1919	901†	4,420	6,484	33,692.45	20,744.18
1919-1920	1,286†	6,105	7,054	47,361.97	30,147.13
1920-1921	1,420†	6,820	6,511	66,157.03	39,143.41
1921-1922	1,636†	7,331	5,466	65,450.60	46,930.12

* Old and new patients.

† New patients only.

The classification of the new patients presenting themselves during the year is published below in tabular form, arranged according to the Classification of Diseases adopted by the Boston hospitals and based on the numbers in the International List of Causes of Death.

	<i>Male</i>	<i>Female</i>	<i>Total</i>
CARCINOMA			
Breast.....7-43a	3	80	83
Buccal Cavity.....7-39a			
Cheek.....	22	1	23
Jaw, lower.....	17	3	20
Jaw, upper.....	3	5	8
Lip.....	53	4	57
Palate.....	14	0	14
Parotid.....	1	1	2
Tongue and floor of mouth.....	79	8	87
Tonsil.....	18	2	20
Total.....7-39a	207	24	231

	<i>Male</i>	<i>Female</i>	<i>Total</i>
CARCINOMA (<i>Continued</i>)			
Female Genital Organs.....7-42a			
Cervix uteri.....	0	179	179
Clitoris.....	0	1	1
Ovary.....	0	3	3
Uterus.....	0	9	9
Vagina.....	0	12	12
Vulva.....	0	12	12
Total.....7-42a	0	216	216

Male Genital Organs.....7-45a			
Penis.....	6	0	6
Prostate.....	8	0	8
Scrotum.....	3	0	3
Seminal vesicle.....	1	0	1
Testicle.....	2	0	2
Total.....7-45a	20	0	20

Peritoneum, Intestines and Rectum, etc...7-41a			
Intestine.....	2	1	3
Rectum.....	26	19	45
Total.....7-41a	28	20	48

Skin.....7-44a			
Abdomen.....	1	0	1
Back.....	3	1	4
Cheek.....	51	49	100
Chest.....	2	1	3
Chin.....	1	3	4
Ear.....	15	6	21
Eyelid.....	21	19	40
Forehead.....	22	28	50
Lip.....	5	4	9
Lower extremity.....	5	2	7
Mastoid region.....	1	2	3
Neck.....	3	1	4
Nose.....	41	46	87
Scalp.....	2	3	5
Shoulder.....	0	1	1
Upper extremity.....	8	7	15
Total.....7-44a	181	173	354

	<i>Male</i>	<i>Female</i>	<i>Total</i>
CARCINOMA (<i>Continued</i>)			
Stomach, Liver, etc.....7-40a			
Epiglottis.....	3	0	3
Esophagus.....	27	3	30
Hypopharynx.....	2	0	2
Nasopharynx.....	1	1	2
Pharynx.....	7	2	9
Stomach.....	2	1	3
Total.....7-40a	42	7	49

Urinary Organs.....7-45a			
Bladder.....	11	8	19
Urethra.....	0	1	1
Total.....7-45a	11	9	20

Other Sites.....7-45a			
Antrum.....	7	2	9
Branchial.....	4	0	4
Conjunctiva.....	1	1	2
Ethmoid.....	0	1	1
Larynx.....	16	3	19
Lymph nodes, cervical.....	1	0	1
Mediastinum.....	1	0	1
Nose.....	1	0	1
Pancreas.....	1	0	1
Thyroid.....	1	1	2
Total.....7-45a	33	8	41

SARCOMA (Unspecified)			
Abdomen.....7-44f	1	0	1
Antrum.....7-45f	0	1	1
Arm.....7-45f	0	1	1
Chest wall.....7-44f	1	0	1
Jaw.....7-39f	1	1	2
Nose.....7-44f	0	1	1
Retropharyngeal.....7-40f	1	0	1
Angiosarcoma			
Arm.....7-44f	1	0	1
Chest wall.....7-44f	0	1	1
Nose.....7-44f	1	0	1
Scalp.....7-44f	0	1	1

	Male	Female	Total
SARCOMA (Unspecified) — Continued			
Fibrosarcoma			
Arm.....7-44f	0	1	1
Back.....7-44f	1	0	1
Leg.....7-44f	1	0	1
Nasal septum.....7-45f	0	1	1
Thigh.....7-45f	4	2	6
Giant-cell tumor			
Scapula.....7-45ff	1	0	1
Melanotic sarcoma			
Abdomen.....7-44f	0	1	1
Chest.....7-44f	1	0	1
Eye.....7-45f	1	0	1
Labia.....7-45f	0	1	1
Neck.....7-44f	2	0	2
Mixed-cell sarcoma			
Testicle.....7-45f	1	0	1
Osteogenic sarcoma			
Clavicle.....7-45f	1	0	1
Femur.....7-45f	1	1	2
Humerus.....7-45f	1	0	1
Ilium.....7-45f	1	0	1
Nose.....7-45f	0	2	2
Pubis.....7-45f	1	0	1
Sacrum.....7-45f	0	1	1
Vertebra.....7-45f	0	1	1
Small round-cell sarcoma			
Forehead.....7-44f	0	1	1
Multiple.....7-45f	0	1	1
Thigh.....7-45f	1	0	1
Spindle-cell sarcoma			
Foot.....7-44f	1	0	1
Prostate.....7-45f	1	0	1
Total.....	26	19	45
EMBRYOMA			
Testicle.....7-45	1	0	1
ENDOTHELIOMA			
Back.....7-44b	1	0	1
Eyelid.....7-44b	1	1	2
Lip.....7-39b	0	1	1
Thumb.....7-44b	1	0	1
Tongue.....7-39b	0	1	1
Total.....	3	3	6
HYPERNEPHROMA			
Kidney.....7-45e	1	0	1

	<i>Male</i>	<i>Female</i>	<i>Total</i>
MALIGNANT DISEASE (Unspecified)			
Mediastinum.....7-45	I	O	I
Ovary.....7-42	O	I	I
Total.....	I	I	2
MALIGNANT LYMPHOMA .....7-53	14	10	24
Lymphosarcoma.....	5	4	9
Total.....7-53	19	14	33
MIXED MALIGNANT GROWTH			
Parotid.....7-39g	5	2	7
Submaxillary gland.....7-39g	O	I	I
Total.....	5	3	8
MYELOMA			
Vertebra.....7-45k	2	O	2
NON-MALIGNANT TUMORS			
Adenofibroma			
Breast.....7-133	I	O	I
Adenoma			
Thyroid.....7-88	O	I	I
Adenomyoma			
Vaginal septum.....7-132	O	I	I
Angioma			
Cheek.....7-99	O	I	I
Chin.....7-145	I	O	I
Forehead.....7-145	2	2	4
Jaw.....7-146	O	I	I
Leg.....7-145	I	O	I
Lip.....7-99	2	2	4
Mastoid region.....7-145	O	I	I
Nose.....7-86	I	4	5
Tongue.....7-99	I	O	I
Angioma cavernosum			
Cheek.....7-145	O	I	I
Lip.....7-99	I	O	I
Nose.....7-86	O	I	I
Angioma serpiginosum			
Neck.....7-46	I	O	I
Angioma telangiectatic			
Nose.....7-86	O	I	I
Forward.....	11	16	27

	<i>Male</i>	<i>Female</i>	<i>Total</i>
NON-MALIGNANT TUMORS (<i>Continued</i>)			
Brought forward.....	11	16	27
Chondroma			
Rib.....7-146	1	0	1
Cyst			
Gland, sublingual.....7-99	1	0	1
Lip.....7-99	2	2	4
Ovary.....7-131	0	2	2
Cyst, dentigerous			
Jaw.....7-146	0	1	1
Cyst-adenoma, papillary			
Breast.....7-133	0	1	1
Epulis			
Jaw.....7-146	1	1	
Fibroma			
Breast.....7-133	0	2	2
Jaw.....7-146	0	1	1
Nose.....7-86	0	1	1
Fibromyoma			
Uterus.....7-129	0	20	20
Keloid			
Abdomen.....7-76	1	0	1
Arm.....7-145	1	0	1
Back.....7-145	1	0	1
Breast.....7-133	0	1	1
Chest.....7-145	2	0	2
Chin.....7-145	1	0	1
Ear.....7-76	1	0	1
Face.....7-145	0	1	1
Neck.....7-46	0	1	1
Shoulder.....7-145	0	1	1
Lipoma			
Shoulder.....7-145	0	1	1
Lymphangioma			
Forehead.....7-145	0	1	1
Nasopharynx.....7-100	1	0	1
Neck.....7-46	1	0	1
Tongue.....7-99	1	0	1
Osteoma			
Antrum.....7-146	1	0	1
Papilloma			
Arm.....7-145	0	1	1
Back.....7-145	0	1	1
Bladder.....7-124	1	0	1
Buttocks.....7-145	0	1	1
Cheek.....7-145	1	2	3
Ear.....7-76	1	0	1
Foot.....7-145	0	1	1
Forehead.....7-145	3	2	5
Forward.....	33	61	94

	<i>Male</i>	<i>Female</i>	<i>Total</i>
NON-MALIGNANT TUMORS (<i>Continued</i>)			
Brought forward.....	33	61	94
Gum.....7-99	0	1	1
Hand.....7-145	0	1	1
Larynx.....7-87	1	0	1
Lip.....7-99	4	1	5
Nose.....7-86	2	1	3
Orbit.....7-75	1	0	1
Palate.....7-100	2	0	2
Tongue.....7-99	2	3	5
Urethra.....7-125	1	1	2
Polyp			
Cervix.....7-129	0	1	1
Wen.....7-145	5	8	13
Total.....	51	78	129

SPECIAL SKIN DISEASES			
Acne rosacea.....10-145	0	1	1
Cicatrix.....10-145	1	0	1
Comedo.....10-145	0	1	1
Dermatitis.....10-145	4	1	5
Hypertrichosis.....10-145	0	1	1
Keratosis.....10-145	51	32	83
Lichen planus.....10-145	2	0	2
Lupus erythematosus.....10-145	2	1	3
Neurodermite.....10-145	0	1	1
Nevus.....10-150	1	5	6
Nevus papillaris.....10-150	0	1	1
Nevus pigmentosus.....10-150	1	3	4
Nevus pilosus.....10-150	1	3	4
Nevus vascularis.....10-150	0	1	1
Other diseases of the skin.....10-145	0	1	1
Psoriasis.....10-145	2	0	2
Sarcoid.....10-145	1	0	1
Sycosis.....10-145	2	0	2
Verruca.....10-145	5	3	8
Verruca plana juvenilis.....10-145	0	1	1
Total.....	73	56	129

	<i>Male</i>	<i>Female</i>	<i>Total</i>
OTHER CONDITIONS			
SECTION I. SPECIFIC INFECTIOUS DISEASES, GENERAL DISEASES			
Carbuncle			
Neck.....I-143	I	O	I
Impetigo contagiosa.....I-145	I	O	I
Cellulitis.....I-144	I	O	I
Lupus vulgaris.....I-34	I	I	2
Syphilis.....I-37	6	4	10
Tuberculoma			
Nasal septum.....I-34	O	I	I
Tuberculosis			
Larynx.....I-28	2	O	2
Lymph nodes, cervical.....I-34	2	6	8
Rectum.....I-31	I	I	2
Vaginitis, gonorrheal.....I-38	O	I	I
SECTION II. DISEASES DUE TO ANIMAL PARASITES			
Cyst, echinococcus.....2-112	I	O	I
Pediculosis capilliti.....2-145	O	I	I
SECTION V. DISEASES DUE TO PHYSICAL AGENTS			
Burn.....5-167	O	I	I
SECTION IX. GENERAL INJURIES AND DISEASES OF SKIN AND SUBCUTANEOUS TISSUE			
Sepsis, localized			
Hand.....9-144	2	O	2
Ulcer			
Abdomen.....9-145	O	I	I
Back.....9-145	O	I	I
Lip.....9-145	I	O	I
Wound, incised			
Thumb.....9-186	I	O	I
SECTION XII. DISEASES OF THE LYMPHATIC SYSTEM			
Abscess			
Cervical lymph node.....12-84	3	O	3
Lymphadenitis			
Axillary.....12-84	I	O	I
Cervical.....12-84	I	2	3
Epitrochlear.....12-84	O	I	I
SECTION XIII. DISEASES OF THE BLOOD			
Anemia, secondary.....13-54	O	I	I
Leukemia, lymphoid.....13-53	8	2	10
Leukemia, myeloid.....13-53	3	3	6
Polycythemia.....13-55	2	3	5
Purpura hemorrhagica.....13-55	O	I	I
Other diseases of the blood.....13-53	O	I	I
Forward.....	38	32	70

	Male	Female	Total
OTHER CONDITIONS (<i>Continued</i>)			
Brought forward.....	38	32	70
SECTION XIV. DISEASES OF THE DUCTLESS GLANDS			
Banti's disease.....14-54	0	2	2
Splenomegaly.....14-54	1	0	1
Diseases of the thyroid gland.....14-88	0	1	1
SECTION XV. DISEASES OF THE NERVOUS SYSTEM			
Adenoma of pituitary gland.....15-74	2	3	5
Edema, angioneurotic.....15-74	1	0	1
Mastodynia.....15-73	0	2	2
Neuralgia, facial.....15-73	0	1	1
Neurofibroma.....15-74	1	0	1
Paralysis, bulbar.....15-63	1	0	1
Paralysis, facial.....15-66	1	0	1
Scleroderma.....15-145	0	1	1
Tumor of pituitary gland.....15-74	0	1	1
SECTION XVI. DISEASES OF THE BONES, JOINTS, MUSCLES, TENDONS, FASCIA			
Arthritis, hypertrophic.....16-147	0	1	1
Fracture of humerus.....16-172	0	1	1
Osteomyelitis of jaw.....16-146	1	1	2
SECTION XVII. DISEASES AND INJURIES OF THE EYE AND EAR			
Abscess of lacrimal gland.....17-75	0	1	1
Cataract.....17-75	0	1	1
Conjunctivitis, vernal.....17-75	1	0	1
Dacryocystitis.....17-75	0	1	1
Hordeolum.....17-75	1	0	1
Other diseases of the conjunctival.....17-75	1	0	1
SECTION XVIII. DISEASES OF THE NOSE AND ACCESSORY SINUSES			
Fissure of nostril.....18-86	0	1	1
Rhinitis.....18-86	0	1	1
SECTION XIX. DISEASES OF THE MOUTH, LIPS, CHEEKS, PHARYNX, TONSILS AND PALATE			
Abscess of submaxillary gland.....19-99	1	0	1
Leukoplakia.....19-99	7	2	9
Pharyngitis.....19-100	0	2	2
Tonsillitis.....19-100	0	1	1
Other diseases of the lip.....19-99	1	0	1
Forward.....	58	56	114

	Male	Female	Total
OTHER CONDITIONS (<i>Continued</i>)			
Brought forward.....	58	56	114
SECTION XX. DISEASES OF THE JAW, TEETH AND GUMS			
Abscess, alveolar.....20-99	1		
Leukoplakia.....20-99	1	1	2
		0	1
SECTION XXI. DISEASES OF THE TONGUE			
Leukoplakia.....21-99	2	5	7
Other diseases of the tongue.....21-99	2	1	3
SECTION XXII. DISEASES OF THE ESOPHAGUS			
Stricture.....22-101	0	1	1
SECTION XXIII. DISEASES OF THE STOMACH			
Gastritis.....23-103	0	1	1
Gastropnoia.....23-103	0	1	1
SECTION XXIV. DISEASES OF THE INTESTINES			
Constipation.....24-110	0	1	1
SECTION XXV. DISEASES OF LIVER AND GALL DUCTS			
Cholecystitis.....25-115	1	0	1
SECTION XXIX. DISEASES OF THE LARYNX			
Laryngitis.....29-87	1	0	1
SECTION XXXII. DISEASES OF THE PLEURA AND MEDIASTINUM			
Pleurisy, serofibrinous.....32-93	0	1	1
SECTION XXXV. DISEASES OF URETHRA, MALE AND FEMALE			
Caruncle of urethra.....35-125	0	4	4
SECTION XXXVII. DISEASES OF THE FEMALE GENERATIVE ORGANS			
Endocervicitis.....37-130	0	10	10
Endometritis.....37-130	0	8	8
Erosion of cervix.....37-130	0	1	1
Fibrosis of uterus.....37-130	0	8	8
Laceration of cervix.....37-130	0	2	2
Other diseases of vagina.....37-132	0	2	2
SECTION XXXIX. DISEASES OF THE BREAST, MALE AND FEMALE			
Cystic disease.....39-133	1	10	11
Mastitis.....39-133	0	2	2
Paget's disease of nipple.....39-133	0	2	2
Other diseases of the breast.....39-133	0	1	1
SECTION XLI. ILL-DEFINED OR UNCLASSIFIED DISEASES..			
Apprehension.....41-189	1	4	5
No diagnosis.....41-189	9	10	19
No disease.....41-189	2	7	9
Total.....	79	139	218

SUMMARY

CARCINOMA	
Breast.....	83
Buccal Cavity.....	231
Female Genital Organs.....	216
Male Genital Organs.....	20
Peritoneum, Intestines and Rectum, etc.....	48
Skin.....	354
Stomach, Liver, etc.....	49
Urinary Organs.....	20
Other Sites.....	41
Total Carcinoma.....	1,062
Carcinoma.....	1,062
Sarcoma.....	45
Other Malignant Tumors.....	53
Non-Malignant Tumors.....	129
Special Skin Diseases.....	129
Other Conditions.....	218
Total.....	1,636

Following the policy adopted in former years, all cases of certain diseases have been placed under the charge of one or more members of the staff. This has proved to be a very satisfactory arrangement, both from the standpoint of the patient and for scientific research. Thus, Dr. G. A. Leland, Jr., and Dr. J. S. Hodgson have continued to care for all cases of carcinoma of the female genital organs—216 cases during the past year; Dr. Smith has cared for cases of cancer involving the genito-urinary organs; Dr. Simmons for cases of carcinoma of the buccal mucosa; Drs. Greene and Herman for cases of carcinoma of the nose, throat, and esophagus; Dr. Daland for cases treated by the new X-ray machine and cases of carcinoma of the skin; and Dr. McKittrick for cases of carcinoma of the rectum.

The out-patient clinic has increased in size and more cases are now being referred to the hospital in consultation for diagnosis of suspected cancer than formerly, while somewhat fewer cases of the disease in its incurable form are seen. The work of the out-patient clinic has been much facilitated by the use of the special quarters provided in the new building. The new room for radium treatment has also proved to be helpful and gives a certain amount of privacy not obtainable before to patients receiving radium treatments.

The community served by the hospital is best shown by the following analysis of the residences of the new patients, and it will be noted that 28.2 per cent of the patients live more than forty miles from Boston.

RESIDENCES OF NEW PATIENTS

Within forty miles of Boston.....	1,174
Elsewhere in Massachusetts.....	179
Maine.....	79
New Hampshire.....	94
Vermont.....	20
Rhode Island.....	57
Connecticut.....	6
Other States.....	10
Canada.....	17

Seven hundred and fifty-three operations were performed during the year. Many of these operations included radium treatment, as in many instances cancer is best treated by a combination of radium and surgery. In certain situations, radium cannot be satisfactorily employed without a general anesthetic, and it is necessary, therefore, to class the procedure as an operation. Many minor operations were performed on early cancer and precancerous lesions under a local anesthetic and one hundred and sixty-eight specimens were removed for pathological examination to confirm the clinical diagnosis.

Work on the records has been continued as in former years. Follow-up work is being carried on and as far as possible the record of every case is kept up to date. New printed forms have been adopted for use in all cases requiring treatment by the new X-ray machine.

The increase in the number of patients has made it necessary to have more of the staff assist in the general surgical clinics in order that the clinic may be finished at a reasonable hour to allow the patients coming from a distance to return to their homes on the same night. If the number continues to increase, it may be necessary to hold the general surgical clinic three, instead of two, days a week.

Miss Marion Colburn, in charge of the Social Service Department, has been of great assistance in placing destitute cases, and in many other ways. Owing to the class of patients seen at this hospital, the work of this department is often discouraging as no constructive results can be shown.

The surgeon wishes to express his appreciation to members of the staff, the administration, and the nurses for their co-operation and devotion to the work. It has made it possible to handle the large clinics in a satisfactory manner.

Respectfully submitted,

CHANNING C. SIMMONS,
Surgeon.

July 1, 1922

REPORT OF PHYSICIAN
TO THE
CANCER COMMISSION OF HARVARD UNIVERSITY

GENTLEMEN: The study and treatment of cases of leukemia, polycythemia, and a few cases of atypical blood conditions have been continued in a similar manner to previous years. Previously it has been believed that not more than slight improvement could be expected from radiation in cases of chronic lymphatic leukemia particularly as contrasted with the marked improvement frequently observed in chronic myelogenous leukemia. During the past year, several cases of chronic lymphatic leukemia have shown striking improvement following radiation. An effort is being made to determine more accurately the character of the case of lymphatic leukemia in which distinct improvement should be anticipated. Several cases of polycythemia without enlarged spleens have been treated with large amounts of radium over the long bones with some but not marked benefit, more however than they obtained after many roentgen-ray treatments.

Doctor Buckman and Doctor Minot are studying blood alterations referable to hemolysis in polycythemia and have continued their observations on the development of anemia in this disease. Under their supervision and by aid of the Proctor Fund, nine colored plates have been made by Miss Piotti to illustrate the value of blood histology in the treatment of myelogenous leukemia. Outlines are sketched for about eight more plates to complete the series. Doctor Buckman and Doctor Minot have begun a comprehensive survey of the data accumulated on myelogenous leukemia which will be studied in conjunction with that of the Massachusetts General Hospital.

In December, 1921, Doctor Gunderson's paper entitled "The Basal Metabolism in Myelogenous Leukemia and Its Relation to the Blood Findings" was published in the *Boston Medical and Surgical Journal*, Vol. 185, page 785.

Doctor Minot's paper on "Megacaryocytes in the Peripheral Circulation" will appear in the July issue of *The Journal of Experimental Medicine*.

Dr. Stern has completed a very full written report on the platelets in leukemia. It has been deemed wise to postpone the publication of these data pending certain further observations.

Dr. Buckman has completed his work on the "Autolytic Properties of the Blood in Myelogenous Leukemia" and it will be published about September.

Dr. Stern completed his service as Resident Physician September 1 and left to take charge of a "blood clinic" at the University of Michigan.

Dr. Donald S. King served as Resident Physician from September 1, 1921 to January 1, 1922 until Dr. James Hitchcock could commence his duties as Resident Physician.

Dr. Hitchcock, under Dr. Minot's supervision, has organized at the Massachusetts General Hospital a clinic for the study and treatment of "blood conditions" suitable for radiation therapy. This permits coöperation between the hospitals and cases can advantageously be studied at both institutions. In this connection, work has been begun on studying the basal metabolism in lymphatic leukemia with a view to determine further its significance and value in prognosis and treatment. When possible, the clinical material of the Huntington Hospital is being studied at the Massachusetts General Hospital. It is to be regretted that a basal metabolism cannot be determined at the Huntington Hospital.

Dr. Hitchcock has made a few observations on the secretory function of the stomach in leukemia and it is planned to continue this study by the aid of the house officers.

The money from the Proctor Fund granted for three years for "The Study of Blood Conditions at the Harvard Medical School and Allied Hospitals" terminated July 1, 1922. During the last three years the work at the Huntington Hospital has been materially aided by this fund. Among other contributions, it enabled the possibility of a full-time medical resident. Though the work will continue in a similar manner as formerly, it is to be regretted that there are not more funds available for still further clinical investigation. It would be ideal to have sufficient funds for the establishment in the hospital of a full-time clinical investigator, a graduate of six to twelve years, an

assistant, with a technician and supplies in addition to one or two visiting physicians.

Dr. Peabody resigned as Consulting Physician in the autumn of 1921. Though he continues to take a distinct interest in the work of the hospital, his stimulating activities and constant advice are keenly missed.

During the coming year, the work referred to above will be continued and a study of the effect of radiation from the new X-ray apparatus on leukemia and allied conditions should form an important part of the clinical observations.

Signed,

GEORGE R. MINOT, M.D.,
Physician.

July 1, 1922.

REPORT OF THE MATRON
TO THE
DIRECTOR OF THE CANCER COMMISSION OF
HARVARD UNIVERSITY

DEAR SIR: I have the honor to submit to you my report for the year ending June 30, 1922.

There has been a marked decrease in the number of patients admitted to the house, owing to the fact that fewer patients requiring prolonged treatment have presented themselves; and longer intervals are allowed to elapse before former patients are asked to report for further treatment.

During the fiscal year, 1,281 were received as in-patients and there were 7,331 out-patient visits. Of the 1,281 in-patients, 115 or 9 per cent paid no fees, 768 or 60 per cent paid less than \$21 per week, and 398 or 31 per cent paid more than \$21 for accommodation in private rooms.

HOUSEKEEPING — The completion and occupancy of the new laboratory building in March was an event in our hospital history. This means a marked increase in our housekeeping expenses, as one half of the amount spent is due to charges made by the University for electricity, heat, refrigeration, and water, over the cost of which the hospital has no control. It has been necessary, also, to employ two more maids to care for the building.

CARE OF PATIENTS — There has been an increase in this department due largely to the fact that more operations have been performed, making it necessary to increase our nursing force. Although the general health of the nurses has been good, it has been necessary to change the work of those coming in contact with the radium every two months, and in some instances to give extra vacations. This is an added expense, as supply nurses must be employed to take their places. Three nurses are now on duty in the Out-Patient Department. It will probably be necessary to employ two more as soon as the X-ray machine is in operation.

PROVISIONS — There has been a marked decrease in cost of provisions due to lowering of prices of food and to the fact

that we can now store groceries and therefore are able to buy at a better advantage.

The chief physical needs of the hospital are:

1. An iron fence for the front of the hospital building. The present structure is a continual source of annoyance and expense.
2. A sitting room for the convalescent patients of Ward B. This could easily be accomplished by fitting up the solarium off Ward B, similar to the one off Ward A.
3. Repainting the nurses' quarters a lighter color to give them a more cheerful appearance.
4. A suitable storehouse back of the hospital for screens, garden implements, etc.

There have been twenty deaths in the hospital. Autopsies were performed on eleven.

Seven hundred and fifty-three operations were performed during the year, as follows:

OPERATIONS FOR 1921-1922

Carcinoma

Breast

Amputation and dissection of axilla.....	4
Excision and radium treatment.....	2

Buccal Cavity

Jaw

Curettage and cauterization.....	1
Excision and cauterization.....	3
Excision, curettage and radium treatment.....	1

Lip

Excision.....	14
Excision and dissection of neck.....	8
Excision and plastic operation.....	4

Mouth, floor of

Excision.....	1
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Palate and larynx

Radium treatment.....	1
Tracheotomy.....	1

Tongue

Dissection of neck.....	
Excision.....	
Excision and cauterization.....	

Female Genital Organs

Cervix

Curettage and radium treatment.....	196
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Clitoris

Excision.....	1
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Labia

Excision.....	1
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Ovary

Curettage and radium treatment.....	3
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Uterus	
Curettage and radium treatment.....	8
Ether examination.....	1
Vagina	
Curettage and radium treatment.....	14
Vulva	
Cauterization and excision.....	1
Curettage and radium treatment.....	5
Male Genital Organs	
Penis	
Circumcision.....	1
Prostate	
Cystoscopy.....	4
Prostatectomy and radium treatment.....	2
Seminal vesicle	
Cystoscopy.....	2
Testicle	
Excision.....	1
Peritoneum, Intestines and Rectum	
Rectum	
Colostomy.....	2
Radium treatment.....	23
Skin	
Curettage.....	2
Excision.....	36
Incision and drainage.....	2
Plastic operation.....	5
Radium treatment.....	1
Stomach, Liver, etc.	
Epiglottis	
Laryngoscopy and radium treatment.....	2
Esophagus	
Esophagoscopy.....	5
Esophagoscopy and radium treatment.....	36
Tracheotomy.....	1
Hypopharynx	
Tracheotomy and radium treatment.....	2
Nasopharynx	
Radium treatment.....	2
Urinary Organs	
Bladder	
Cauterization and radium treatment.....	2
Cystoscopy.....	20
Cystotomy and radium treatment.....	2
Nephrostomy and decapsulation of kidney.....	1
Urethra	
Radium treatment.....	1
Regions not Elsewhere Mentioned	
Antrum	
Curettage and radium treatment.....	3
Excision.....	1
Larynx	
Laryngoscopy and radium treatment.....	6
Tracheotomy.....	5
Lymph node, cervical	
Incision and drainage and radium treatment.....	1
Orbit	
Excision and radium treatment.....	1
Exenteration.....	3

Thyroid	
Incision, curettage and radium treatment.....	I
Endothelioma	
Lip	
Excision.....	I
Tongue	
Excision.....	I
Mixed Malignant Growth	
Submaxillary gland	
Excision.....	I
Sarcoma	
Fibrosarcoma	
Hand	
Amputation and dissection of axilla.....	I
Melanotic sarcoma	
Labia and groin	
Radium treatment.....	I
Osteogenic sarcoma	
Clavicle	
Excision.....	I
Humerus	
Amputation of arm.....	I
Spindle-cell sarcoma	
Prostate	
Cystoscopy and radium treatment.....	I
Non-Malignant Tumors	
Adenoma	
Uterus	
Curettage and radium treatment.....	I
Angioma	
Excision.....	5
Cyst	
Cheek	
Incision and drainage.....	I
Labia	
Excision.....	I
Lip	
Excision.....	3
Sublingual gland	
Excision.....	I
Epulis	
Jaw	
Excision and extraction of teeth.....	I
Fibromyoma	
Uterus	
Curettage and radium treatment.....	20
Extraction of radium.....	I
Supravaginal hysterectomy, salpingo-oöphorectomy and appendectomy.....	I
Keloid	
Abdomen	
Excision and radium treatment.....	I
Osteoma	
Antrum	
Radium treatment.....	I
Papilloma	
Curettage and radium treatment.....	I
Evulsion.....	I

Excision.....	10
Laryngoscopy.....	I
Wen	
Excision.....	7
Special Skin Diseases	
Keratosis	
Excision.....	2
Nevus	
Excision.....	2
Sarcoid	
Lip	
Excision.....	I
Verruca	
Chest wall	
Excision.....	I
Other Conditions	
Abscess	
Incision and drainage.....	7
Carbuncle	
Neck	
Excision.....	I
Endocervicitis	
Curettage and radium treatment.....	5
Endometritis	
Curettage and radium treatment.....	8
Erosion	
Cervix	
Trachelorrhaphy.....	I
Fibrosis	
Uterus	
Curettage and radium treatment.....	7
Fissure	
Lip	
Excision.....	I
For diagnosis	
Esophagoscopy.....	I
Removal of specimen.....	168
Fracture	
Humerus	
Reduction.....	I
Granulating wound	
Ear	
Skin grafting.....	I
Mastoid region	
Skin grafting.....	2
Laceration	
Cervix	
Trachelorrhaphy.....	I
Leukoplakia	
Cheek	
Excision and cauterization.....	I
Jaw	
Excision and cauterization.....	I
Tongue	
Excision.....	I
Lupus vulgaris	
Ear	
Excision.....	I

Eyelid	
Curettage and radium treatment.....	I
Lymphadenitis	
Cervical	
Incision and drainage.....	I
Neuralgia	
Alcohol injection.....	6
Purpura hemorrhagica	
Curettage and radium treatment.....	I
Sepsis	
Finger	
Incision and drainage.....	I
Removal of sequestra.....	I
Stomatitis gangrenosa	
Cauterization.....	I
Stricture	
Rectum	
Exploratory laparotomy.....	I
Tonsillitis, chronic	
Tonsillectomy.....	I
Tuberculosis	
Lymph nodes, cervical	
Incision and drainage.....	I
Ulcer	
Tongue	
Excision.....	I
Vagina	
Curettage and radium treatment.....	I
Urethritis	
Cystoscopy.....	I
Total.....	<hr/> 753

We are very grateful to the following friends of the hospital who contributed gifts:

Dr. R. B. Greenough.....	Christmas gifts, books and magazines
Dr. C. C. Simmons.....	Books and magazines
Mr. Roland Thorpe.....	Flowers
Mrs. Moses Williams.....	Fruit and flowers
Miss Margaret Conrad.....	Books
Mrs. George Larcon.....	Books and magazines

During the year, Miss Myra B. Conover, the Assistant Matron, has inaugurated a system of intensive follow-up work which has been very successful, and I wish to acknowledge our indebtedness to her for her unselfish and untiring efforts in making the year a successful one. She has also designed a very complete and comprehensive card for the Social Service and follow-up work.

We are also greatly indebted to the District Nursing Association for the efficient home care which they have so cheerfully given our patients.

The nurses wish to thank the Commission for fitting up the solarium between the hospital and the laboratories for a reception and rest room. This fills a long-felt want and is greatly appreciated by the office force and technicians, as well as by the nurses.

Owing to the increased demand for my textbook, "Clinical Laboratory Technic for Nurses," I was asked to revise the work for the second edition. In spite of the fact that nearly all large training schools now include a course in laboratory technique in their curriculum, there seems to be a great shortage of applicants to fill the positions open. It is hoped that the training of laboratory technicians may again be taken up at some future date. During the year, one hundred letters have been received inquiring about the course which was formerly given here.

Respectfully submitted,

ANNA L. GIBSON, R.N.

July 1, 1922

REPORT OF THE SOCIAL SERVICE WORKER
TO THE
DIRECTOR OF THE CANCER COMMISSION
OF HARVARD UNIVERSITY

DEAR SIR: The following is the report of the Social Service Worker of the Huntington Hospital for the year ending June 30, 1922.

The number of patients referred this year to Social Service has been ninety-six. There were several difficult social problems to adjust and early during the year a Social Service Conference was formed. This conference promises to be of great assistance to the department in helping to decide the best way to give patients the most comfort.

To the Committee of the Permanent Charity Fund Incorporated, we are again indebted for a generous gift of \$500 donated to this department for the relief of patients. This fund enables us to furnish luxuries as well as care and necessities for our patients in the last few months of their lives. For example, a young married woman with incurable disease was referred to the department. She had two young children. The husband earned a small salary. At first only a friendly contact was made and for many weeks it was unnecessary for any aid to be given. When the patient was unable to care for herself, we furnished her with food and warm clothing. Later, a nurse was obtained to care for her, and eventually, the patient was placed in a permanent hospital. The Social Service Department assumed the responsibility and the expense for the extras which were provided. We know that if we had not been interested in this particular case, the patient would have been very much neglected.

Social Service is often needed by patients who have no financial difficulties, but need only friendly interest. For instance, a patient who had reported only once at this hospital was referred for a home visit. We found him in his home much discouraged about himself; he had very little hope of ever feeling better, and was in constant pain. He seemed pleased with the friendly call, and that we should want him to return

to the hospital for treatment. Three weeks later, when another home visit was made, an entirely different man was found. He had been relieved of pain and was intending to return to work in a few days — later we learned that he had done so. Although there cannot be a permanent cure in this case, is it not much better that he should have a few months of comparative comfort? He would never have come back to the hospital if a personal interest had not been taken. There are many more cases similar to this one that Social Service might serve.

The Red Cross Motor Corps has as usual been most kind in allowing us to have a Red Cross car whenever it has been possible, and in this way we have transported several of our patients from their homes to the hospital and back again.

The Director and visiting doctors are invariably sympathetic and interested whenever there is a special case, and Miss Gibson and Miss Conover, as always, are willing to coöperate in every way with this department.

During the year 414 home visits were made, 28 patients were placed in permanent hospitals and 35 patients were referred to the District Nurse. Owing to the peculiar type of disease with which this hospital deals, we hope that our service to these patients may grow and that we may give more aid and help to those who need it.

Respectfully submitted,

MARION COLBURN,
Social Worker.

July 1, 1922.

REPORT OF THE RESEARCH FELLOW IN PHYSICS
TO THE
CANCER COMMISSION OF HARVARD UNIVERSITY

GENTLEMEN: I have the honor of presenting the following report for the year beginning July 1, 1921 and ending June 30, 1922.

During the year, the new laboratory building has been completed and the radium and X-ray plants have been installed therein.

The radium is in solution in one of the bulbs attached to the system of pumps that collects and purifies the emanation. The bulb containing the radium is in a small safe supported on a concrete pedestal. This safe and pedestal, together with the parts of the pumping and purifying tubes that become radioactive, are in a large fireproof vault. The walls of the vault furnish protection for those who operate the pumps, as well as protection against fire and theft.

Two complete sets of pumps have been attached to the bulb containing the radium, one of which may be used by itself, in case of accident to the other.

About one quarter of a gram of radium has been put into the hands of our radium department by the Massachusetts General Hospital. The radium department extracts and purifies emanation for the Massachusetts General Hospital at a small cost.

The extraction and purification of the emanation and the preparation of the applicators for treatment now go on in a perfectly routine manner.

The new high-power X-ray plant has also been installed in the room in the basement prepared for it, and X-ray treatments are being given in the rooms on the first floor, above that containing the plant itself.

Considerable difficulty has been encountered in insulating some of the very high-tension electrical wires. The solid insulators on the transformers have burned out after prolonged operations at high voltages and high frequencies. Apparently this difficulty has at last been overcome by using oil insulators

instead of the solid insulators which were furnished by the companies that made the transformers.

Considerable attention has been paid to the accurate measurement of the X-rays that come from the tubes. Ionization methods of measuring both the intensity and the average wave-length of the rays have been perfected and are now functioning in a routine manner. Measurements are made of the intensity and average wave-length of a beam of X-ray before and during each treatment. This procedure seems to be superior to that ordinarily employed, in which the instruments measure the power delivered to the plant, instead of the X-radiation that comes from it.

During the early treatments, Dr. Giles had charge of the patients. He accepted, however, an offer of work elsewhere, and since his departure, arrangements have been made with Dr. Sosman of the Peter Bent Brigham Hospital, such that he can spend a portion of his time in taking care of our X-ray patients. Both of these gentlemen have taken courses and have helped in carrying on research work in the physics of X-rays in our laboratory.

Yours sincerely,

WILLIAM DUANE.

July 1, 1922.

REPORT OF THE
RESEARCH FELLOW IN BIO-PHYSICS
TO THE
CANCER COMMISSION OF HARVARD UNIVERSITY

GENTLEMEN: I have the honor of presenting the following report of the activities of my laboratory during the past year.

As in the preceding two years, a large part of my own time has been given to the course in bio-physics, offered by the University and open to graduates and undergraduates. The lectures in this course have been formally written out, and as a result, while the lectures may have lost some of their spontaneity, they will serve as the foundation for a textbook on bio-physics. That such a textbook is urgently needed is shown by the numerous requests that have been received from members of other institutions for outlines of the subject matter, and for the loan of the lectures.

In addition to the lectures regularly offered in the course, a set of lectures upon the measurements of hydrogen ions and other ionic concentrations was introduced. These lectures have grown out of the mathematical study of hydrogen- and hydroxyl-ion equilibria in acids, bases, salts and ampholytes that I made last year. The material is now nearly ready to be put in final form as a monograph on the subject.

With the exception of the work on the transmission of the nervous stimulus, which, as was the case last year, has been under the direction of Dr. Alexander Forbes, all of the laboratory exercises have been adaptations from the experiments of original investigators.

My duties have also included a course of lectures on the "Biological Effects of Radiation" to the class in tropical medicine. A number of lectures have been given before various scientific societies in institutions other than Harvard University.

Dr. Stuart Mudd has been studying certain capillary-electric effects of importance in the dynamics of living systems; electrical endosmosis, the electromotive force of filtration and cataphoresis. Attention was directed to these phenomena by two chief considerations.

First, immediate usefulness. Bacteriologists and immunologists have been filtering proteins, viruses, immune bodies and enzymes without regard to these capillary electric effects which have been shown in this laboratory and elsewhere to enter into filtration to a degree of practical importance.

Second, because it was felt that these forces were important factors underlying two general phenomena, first, the distribution of fluids in the organism, and second, the initial stages of bacterial infection.

The first stage of the study was conducted at Cold Spring Harbor in the summer of 1921, where electromotive forces developed in filtration through Berkefeld candles were investigated. The general laws for such diaphragms had long been known by physicists, but just how Berkefeld filters fell in among the several possible types of porous diaphragms was not known. Owing to widespread use of Berkefeld candles, this research will prove of much practical utility.

Whether or not the electrical double layers between filter and filtering fluid could enter to a considerable degree into filtration was next determined by the filtration of dyes. It was found that basic (electropositive) dyes could be completely decolorized by the electro-negative filter, whereas acid (electronegative) dyes typically passed through unaffected. It seemed desirable to test a living filterable organism with these factors. Since no suitable microörganism was at hand, search in Jamaica Pond and other waters was carried on until a readily cultivable and filterable vibrio, which has not heretofore been described, was isolated.

Preliminary experiments have seemed to show that proteins as a type of amphoteric substances of biological interest are filterable in alkaline media, but not to the same extent in media whose reaction is more acid than their iso-electric points, an effect we had predicted from theoretical considerations. This work is soon to be continued until it is certain whether or not the reaction of the medium is capable of affecting filtration of

proteins to a quantitatively significant degree. A microcata-phoresis chamber was developed in connection with the work of the winter and was demonstrated before the International Association of Medical Museums in Washington in May, 1922.

Mr. Walter S. Hughes has assisted in conducting the bio-physics course in Cambridge and has investigated the potential difference which exists on two sides of a thin glass wall in contact with electrolytes on either side.

Haber and Klemensiewicz have shown that the potential difference is determined in part by the hydrogen-ion concentrations of the electrolytes, and according to these investigators, the variations in the potential differences are proportional to the logarithm of the hydrogen-ion concentration of the variable electrolytes. They suggest that these variations of potential between the glass and the electrolyte might be made the basis for an electro-metric titration method and present some data which they obtained by such electro-metric titrations.

We sought to find in more detail how Haber's method might be applied to various titrations, particularly those to which the hydrogen electrode is not applicable. In the presence of strong oxidizing agents, such as chromates, nitrates, chlorates, permanganates, salts of easily reduced metals, such as Cu, Hg, Ag, etc., also H_2S , CO, and some other substances, the hydrogen electrode does not function. We have found that in certain of these cases the glass electrode is applicable and it will, we believe, be very useful.

In his preliminary experiments, Mr. Hughes has observed that the potential of the glass electrode is directly proportional to the hydrogen-ion concentration only when the hydrogen-ion concentration is greater than 1×10^{-11} . In a more alkaline solution the potential is not a linear function of the logarithm of the hydrogen-ion concentration. The potential goes through a minimum at a hydrogen-ion concentration of about 1×10^{-12} beyond which it increases. It was also found possible to greatly simplify the apparatus used by Haber and Klemensiewicz without impairing the accuracy of the determinations.

The potential of the glass electrode depends to some extent upon its previous history. We believe that an investigation of these variations will throw light upon the laws governing the

potential differences which are always found at interfaces, as those recorded in nerve muscle reactions. Mr. Hughes has found that the glass electrode can be used for the titration of certain substances where the color of indicators is unreliable as a measure of hydrogen-ion concentration as, for example, titrations in the presence of salts of Thorium. Considerable work remains to be done upon the influence of various kinds of glass from which electrodes are made.

Miss Daland has been studying the effects of radiations from radium on bacteria. She has been developing a method for determining the amount of radiation required to kill different species, in order that the influence of various factors, such as temperature, concentration of the medium, etc., upon the rate of destruction may be studied.

When suspensions of bacteria in solidified agar are exposed to a sufficient dose of radium radiation, a volume, the outlines of which correspond to the surfaces of "equal radiation intensity" is sterilized. When the organism used is *Bacillus prodigiosus*, the organisms surrounding this sterilized region develop an abnormally large amount of pigment and the colonies are larger than normal. This may be called a stimulating effect of a weak dose of radiation. When the organism used is *Bacillus pyocyaneus*, there is also an increase in the amount of pigment. It is interesting to note that the pigment of *Bacillus prodigiosus* is intercellular, while the pigment of *Bacillus pyocyaneus* is extracellular.

Since June 1, 1921, about one hundred experiments have been run and photographs showing the potential variation for about fifteen hundred exposures of the frog's eye to light have been obtained. The results of many other experiments have been observed but not photographed. This work has been conducted with the coöperation of Dr. E. L. Chaffee, Assistant Professor of Physics at Harvard College.

The principal lines of research which have been carried on during the year and which are completed are:

1. The responses to light, the intensity of which is uniformly raised or lowered with succeeding exposures, the length of exposure being constant.
2. The response to various lengths of exposure under constant intensity of light.

3. The stages the nerve preparation passes through under constant conditions from the time of dissection until all response ceases — usually a period of about twenty-four hours.

Some phases of the experiment which have been touched upon but not completed are:

1. The effect of temperature.
2. Flicker phenomena.
3. Light adaptation.
4. The "I. T." law.
5. Responses of the guinea pig's eye.

Attempts were made to obtain the eyes of dogfish which possess only rods, but they failed.

A number of improvements have been added to the apparatus.

In July 1921, the Optical Society met at the Medical School to inspect the working of the apparatus.

The first paper on the problem is practically ready for publication. It contains a review of the literature on the subject, a description of the apparatus, a few results, a bibliography, six plates of reproduction of the actual curves obtained from the eye and over twenty drawings and graphs.

Mrs. Brown, while acting as Librarian, prepared a summary of the literature upon the therapeutic effects of injecting radioactive substances into the blood.

Yours very truly,

W. T. BOVIE.

July 1, 1922.

REPORT OF THE STATE DIAGNOSIS SERVICE FOR THE YEAR ENDING JUNE 30, 1922

The number of specimens received for examination and diagnosis during the year ending June 30, 1922, was 2,182, as compared with 1,604 for the previous year. Of the 2,182, 683 came from the Huntington Hospital, as compared with 524 for the previous year, and 1,499 from outside, as compared with 1,080 for the previous year.

Of the 1,499 specimens from outside, a large proportion were marked as originating in certain hospitals, but others undoubtedly came from operations in hospitals without this being indicated. Also, many specimens came from hospitals without indicating the surgeon's name. For these reasons the data given below are necessarily approximate.

The hospitals from which specimens were marked as originating, other than the Huntington Hospital, are as follows:

- Addison Gilbert Hospital, Gloucester
- Alley, Mary A., Emergency, Marblehead
- Beth Israel Hospital, Roxbury
- Beverly Hospital
- Brockton Hospital
- Burbank Hospital, Fitchburg
- Cable Memorial Hospital, Ipswich
- Choate Memorial Hospital, Woburn
- Clinton Hospital
- Cooley Dickinson Hospital, Northampton
- Crary Hospital, Dartmouth
- Fall River City Hospital
- Farren Memorial Hospital, Montague
- Framingham Hospital
- Gale Hospital, Haverhill
- Grafton State Hospital, Worcester
- Hahnemann Hospital, Worcester
- Hale Hospital, Haverhill
- Hillcrest Hospital, Pittsfield
- Holyoke City Hospital
- Lawrence General Hospital
- Leonard Morse Hospital, Natick
- Lynn Hospital
- Malden Hospital
- United States Marine Hospital No. 2, Chelsea
- Marlborough Hospital
- Massachusetts Hospital School, Canton
- Metcalf Hospital, Winthrop
- Middlesex Hospital, Cambridge
- Milford Hospital

Morton Hospital, Taunton
Newton Hospital
Norfolk County Hospital
Quincy City Hospital
Salem Hospital
Somerville Hospital
St. Luke's Hospital, Boston
State Infirmary, Tewkesbury
Sturdy Memorial Hospital, Attleboro
J. B. Thomas Hospital, Peabody
Union Hospital, Lynn
Waltham Hospital

The number of surgeons or other persons whose names were given as senders of specimens, exclusive of specimens from the Huntington Hospital, is 289, as compared with 273 for the previous year.

The great majority of senders of specimens are located outside of Boston and adjoining towns. From this it would seem that the facilities of the Diagnosis Service for the microscopical examination of tumors reach communities which it is especially desirable to serve.

Respectfully submitted,

J. HOMER WRIGHT, M.D., D.Sc.
Pathologist in Charge of Free Diagnosis Service.

REPORT OF THE TREASURER TO THE CANCER COMMISSION OF HARVARD UNIVERSITY

GENTLEMEN: I have the honor to submit to you my report for the year ending June 30, 1922.

Contributions to the funds of the Cancer Commission have been received by the Treasurer of Harvard College from July 1, 1921 to June 30, 1922, amounting to \$61,620. Of this amount \$42,870 was available for current expenses and immediate use, \$16,750 was added to the New Laboratory Building Fund and \$2,000 to permanent funds.

The Treasurer of Harvard College on July 1, 1922 held the following special funds for the benefit of the Cancer Commission of Harvard University :

Francis Bartlett Free Bed Fund.....	\$5,000.00
Memorial Cancer Hospital Endowment Fund.....	101,954.64
T. Jefferson Coolidge Fund for Cancer Research.....	2,000.00
Caroline Brewer Croft Fund.....	92,025.00
William Endicott Fund.....	25,000.00
L. C. Fenno Fund — Treatment by Light Rays.....	20,000.00
Lawrence Carteret Fenno Free Bed Fund.....	5,000.00
Franklin H. Hooper Free Bed Fund.....	5,000.00
Amos Lawrence Hopkins Free Bed Fund.....	5,000.00
Marion D. Lockwood Memorial Fund.....	50,728.58
Julia M. Moseley Fund.....	23,250.00
George von L. Meyer Bequest.....	2,500.00
Clara Endicott Payson Free Bed Fund.....	5,000.00
Emily J. Proctor Gift.....	2,897.62
Gifts for Research in Genetics.....	320.00
F. D. Moulton Gift for Social Workers.....	400.21
James Ewing Mears Bequest.....	9,295.01
Collis P. Huntington Memorial Hospital New Endowment.....	500.00
Dudley B. Fay Memorial.....	2,000.00
David Pingree.....	2,000.00
	<hr/>
	\$359,871.06

This amount is to be compared with the total \$481,446.05 in last year's report, showing a net decrease in the invested funds of the Commission of \$121,574.99 during the year 1921-1922. This decrease was due to the expense of building and equipping the new J. Collins Warren Laboratory.

The list of subscribers to the funds of the Cancer Commission of Harvard University in 1921-1922 is as follows:

Dudley B. Fay Memorial Fund.....	\$2,000.00
Mrs. Dudley B. Fay: In memory of her husband, Dudley B. Fay, "to be used for the care of patients suffering from cancer."	

NEW LABORATORY BUILDING FUND

Joseph Lee.....	\$10,000.00
Robert G. Shaw.....	500.00
Dudley L. Pickman.....	1,000.00
Mrs. Neal Rantoul.....	5,000.00
Charles H. Tyler.....	250.00
	<hr/>
	\$16,750.00

GIFTS FOR IMMEDIATE USE

For Present Use:	
"A Friend".....	\$1,980.00
For Salaries:	
Anonymous.....	1,000.00

To be expended under the direction of the Social Service Worker:	
Franklin W. Moulton.....	25.00

*Payment by State of Massachusetts for support of Free Diagnosis Service.....	3,750.00
*1920-21.....	\$1,250.00
1921-22.....	2,500.00

Current Expenses:

George R. Agassiz.....	250.00
Rodolphe L. Agassiz.....	25.00
Mrs. Leonard D. Ahl.....	50.00
Miss Martha A. Alford.....	100.00
Anonymous.....	500.00
Anonymous.....	25.00
Edward W. Atkinson.....	100.00
Charles F. Ayer.....	50.00
Miss Ellen S. Bacon.....	50.00
Hugh Bancroft.....	25.00
Mrs. Walter C. Baylies.....	500.00
Mrs. Junius Beebe.....	25.00
Frank B. Bemis.....	100.00
William Sturgis Bigelow.....	500.00
Charles Sumner Bird.....	25.00
George Nixon Black.....	100.00
Mrs. Arthur W. Blake.....	20.00
Mrs. Francis Blake.....	50.00
Mrs. Daniel M. Bonney.....	250.00
Jeffrey R. Brackett and Mrs. Brackett.....	10.00
Mrs. Frederick T. Bradbury.....	1,000.00
Mrs. Edward D. Brandegee.....	200.00
Mellen Bray Estate, Trustees of.....	2,000.00
Mrs. Sarah F. Bremer.....	50.00
Miss Fannie R. Brewer.....	25.00
Shepherd Brooks and Mrs. Brooks.....	100.00
Mrs. John A. Burnham.....	10.00
I. Tucker Burr.....	25.00
Henry B. Cabot.....	25.00
Miss Georgina S. Cary.....	25.00

Carried forward..... \$6,215.00

<i>Brought forward</i>	\$5,215.00
Miss Louise W. Case	50.00
Miss Marian Roby Case	100.00
Mrs. Theodore Chase	25.00
Committee of the Permanent Charity Fund, Incorporated	750.00
Mrs. Costello C. Converse	200.00
Mrs. T. Jefferson Coolidge	1,000.00
Mrs. Charles E. Cotting	100.00
Miss Elizabeth A. Cotton	150.00
Mrs. David R. Craig	100.00
Mrs. George G. Crocker	100.00
John S. Curtis	50.00
Philip Y. De Normandie	25.00
Miss Rose L. Dexter	100.00
George H. Doty	25.00
Miss Hannah M. Edwards	50.00
Nathaniel H. Emmons	100.00
Mrs. Robert W. Emmons, 2d	25.00
William Endicott	100.00
John W. Farlow	25.00
Miss Fannie M. Faulkner	25.00
Miss Sarah B. Fay	50.00
Frederick P. Fish	25.00
Mrs. W. Scott Fitz	50.00
Thomas A. Forsyth	25.00
Mrs. Louis A. Frothingham	500.00
Mrs. Alvan T. Fuller	25.00
Miss Harriet Gray	100.00
Mrs. Reginald Gray	25.00
Edwin Farnham Greene	25.00
Miss Ellen R. Hathaway	200.00
Horatio Hathaway, Jr.	25.00
Augustus Hemenway	50.00
Robert F. Herrick	200.00
Mrs. Marion L. Higgins	25.00
Franklin W. Hobbs	25.00
Miss Fredrika G. Holden	5,000.00
The Misses Holt	50.00
William Hooper	50.00
Mrs. Amos L. Hopkins	100.00
Henry Hornblower	100.00
Clement S. Houghton	50.00
Miss Elizabeth G. Houghton	25.00
Henry S. Howe	100.00
The Humane Society of the Commonwealth of Massachusetts	500.00
Henry S. Hunnewell	350.00
Miss Eulalie M. Iasigi	25.00
Mrs. Oscar Iasigi	50.00
Henry Jackson	20.00
James Jackson	25.00
Ellerton James	20.00
Edward C. Johnson	20.00
Mrs. Benjamin M. Jones	25.00
Nathaniel T. Kidder	100.00
David P. Kimball	50.00
Mrs. Henry P. King	200.00
<i>Carried forward</i>	\$17,525.00

<i>Brought forward</i>	\$17,525.00
Louis E. Kirstein.....	50.00
Horatio A. Lamb.....	25.00
Thomas W. Lamont.....	250.00
Mrs. Gardiner M. Lane.....	200.00
Lawrence Model Lodging Houses.....	500.00
George C. Lee, in memory of Elizabeth Winsor.....	100.00
Mrs. Augustus P. Loring.....	25.00
Mrs. William Caleb Loring.....	10.00
Thornton K. Lothrop.....	50.00
Mrs. Thornton K. Lothrop.....	275.00
Miss Mabel Lyman.....	100.00
James W. Maguire.....	25.00
Edward Mallinckrodt, Jr.....	500.00
Mrs. Charles E. Mason.....	1,100.00
Miss Ida M. Mason.....	50.00
Mrs. Daniel Merriman.....	25.00
George W. Mitton.....	100.00
J. Pierpont Morgan.....	100.00
Miss Frances R. Morse.....	25.00
Miss Grace Nichols.....	25.00
Mrs. Otis Norcross.....	100.00
William H. O'Connell.....	20.00
Frank C. Paine.....	100.00
Robert Treat Paine.....	25.00
Mrs. Robert Treat Paine, 2d.....	25.00
William A. Paine.....	700.00
Miss Eleanor S. Parker.....	125.00
George A. Peabody.....	1,500.00
Mrs. George H. Perkins.....	100.00
James J. Phelan.....	50.00
Dudley L. Pickman.....	50.00
David Pingree (to be distributed \$1,000 a year beginning with 1921-1922).....	3,000.00
Alexander S. Porter, Jr.....	15.00
Miss Julia C. Prendergast.....	50.00
Mrs. Neal Rantoul.....	500.00
William L. Richardson.....	100.00
Miss Emma Rodman.....	25.00
Mrs. Robert S. Russell.....	100.00
John L. Saltonstall.....	100.00
Mrs. Richard M. Saltonstall.....	100.00
Robert Saltonstall.....	100.00
Mrs. Francis W. Sargent.....	125.00
Henry B. Sawyer and Mrs. Sawyer.....	25.00
Columbus S. Scofield.....	50.00
Herbert M. Sears.....	100.00
Mrs. J. Montgomery Sears.....	100.00
Mrs. Knyvet W. Sears.....	200.00
Richard D. Sears.....	100.00
Mrs. G. Howland Shaw.....	500.00
Mrs. Quincy A. Shaw.....	150.00
Mrs. George S. Silsbee.....	50.00
Miss Laura Slocum.....	10.00
John T. Spaulding.....	50.00
William S. Spaulding.....	50.00
Robert H. Stevenson.....	50.00
James A. Stillman.....	100.00
<i>Carried forward</i>	\$29,605.00

<i>Brought forward</i>	\$29,605.00
Philip Stockton.....	50.00
Galen L. Stone.....	2,500.00
Nathaniel H. Stone.....	100.00
Miss Abby M. Storer.....	25.00
Miss Mary G. Storer.....	25.00
Robert W. Storer.....	25.00
James J. Storrow.....	100.00
Edward Clark Streeter.....	10.00
Miss Alice P. Tapley.....	200.00
Mrs. Ezra R. Thayer.....	10.00
John E. Thayer.....	200.00
Mrs. Nathaniel Thayer.....	100.00
Mrs. Washington B. Thomas.....	25.00
Elihu Thomson.....	25.00
"The Eugene Tompkins Memorial".....	1,000.00
Charles H. Traiser.....	25.00
Mrs. Alexander F. Wadsworth.....	15.00
Eliot Wadsworth.....	100.00
Mrs. William B. Walker.....	50.00
Mrs. Bayard Warren.....	100.00
J. Collins Warren.....	100.00
Lucius H. Warren.....	50.00
Frank G. Webster.....	200.00
Warren B. P. Weeks.....	25.00
Jesse W. Weinberg.....	100.00
Welfare Fund, through George F. Larcom, Trustee.....	25.00
William P. Wharton.....	100.00
George R. White.....	500.00
Miss Gertrude R. White.....	25.00
William Whitman.....	100.00
Edward F. Whitney.....	200.00
Frank Whitney.....	25.00
Edward Wigglesworth.....	25.00
George Wigglesworth.....	100.00
Hugh Williams.....	50.00
Robert Winsor.....	50.00
Mrs. Roger Wolcott.....	25.00
Mrs. William M. Wood.....	100.00
Mrs. B. Loring Young.....	25.00
	<hr/> \$36,115.00

Grants from the funds of the Medical School:

Toward cost of building J. Collins Warren Laboratory from De Lamar Fund.....	\$13,316.12
For work in the laboratory of the Cancer Commission Flattery Research Fund.....	584.06

I have also the honor to submit to you the report of Cooley & Marvin Company, certified accountants, upon the finances of the Cancer Commission of Harvard University and of the Collis P. Huntington Memorial Hospital for the year ending June 30, 1922.

July 1, 1922.

CHARLES JACKSON,
Treasurer.

THE CANCER COMMISSION OF
HARVARD UNIVERSITY

October 16, 1922.

ROBERT B. GREENOUGH, M.D., *Director*,
The Cancer Commission of Harvard University,
Boston, Massachusetts.

DEAR SIR: In accordance with your instructions, we have supervised the accounting of all funds received and disbursed by the Treasurer of the Commission for the year ended June 30, 1922. We have included in our report the figures submitted to us by the Auditor of Harvard University pertaining to the funds of the Commission.

We submit herewith for your consideration the following exhibits:

Exhibit A — Statement of Funds for the year ended June 30, 1922.

Exhibit B — Combined Statement of Assets and Liabilities, as at July 1, 1921 and June 30, 1922.

Exhibit C — Statement of Receipts and Disbursements for the year ended June 30, 1922.

We call attention to the following comments on the matters contained in the above mentioned exhibits.

Exhibit A:

This exhibit was compiled from statements furnished us by the Auditor of Harvard University. The annual subscriptions reported by him are shown here in detail and again in Exhibit C in condensed form under the heading of "Other Income."

Exhibit B:

We present in this exhibit a comparative statement of assets and liabilities (or net available funds), for the current and the preceding year.

The decrease in the net available funds (\$124,942.33) is shown in detail in Exhibit C.

Exhibit C:

This exhibit presents in detail the combined receipts and disbursements from both the hospital and the Auditor's records. The total receipts for the year were \$142,821.53, while the operating expenses were \$102,410.64, or a gain of \$40,410.89. The expenditures on new building and equipment amounted to \$165,353.22, leaving a net reduction in available funds of \$124,942.33.

Disbursements by the hospital direct are made up as follows:

Operating Expenses.....	\$81,801.38
Other Expenses.....	2,350.93
	<hr/>
	\$84,152.31
New Equipment.....	16,145.15
	<hr/>
	\$100,297.46

The Auditor's report of disbursements, as shown in Exhibit A, is \$217,466.40. Deducting from this amount the transfer to the hospital account of \$50,000 leaves an expenditure of \$167,466.40, which is accounted for as follows:

Corporation Salaries.....	\$18,258.33
Paid on New Laboratory.....	149,208.07
	<hr/>
	\$167,466.40

GENERAL

Food Costs:

From statements of patient and employee days submitted to us by the accounting department of the hospital, is shown below in tabulated form the average daily cost of food:

	<i>This Year</i>	<i>Last Year</i>	<i>Increase or Decrease</i>
In-Patient Days.....	5,466	6,511	1,045*
Employee Days (estimated)	13,269	12,488	781
Out-Patient days (estimated).....	153	123	30
	<hr/>	<hr/>	<hr/>
Total Days.....	18,888	19,122	234*
* Decrease			

	<i>This Year</i>	<i>Last Year</i>	<i>Increase or Decrease</i>
Provisions.....	\$8,227.88	\$11,636.75	\$3,408.87*
Kitchen and Dining Room....	3,155.94	3,259.72	103.78*
	<u>\$11,383.82</u>	<u>\$14,896.47</u>	<u>\$3,512.65*</u>
Less: Board of Special Nurses..	309.00	239.00	70.00
Net cost.....	<u>\$11,074.82</u>	<u>\$14,657.47</u>	<u>\$3,582.65*</u>
Average Cost per Day.....	.586	.766	.180*

* *Decrease.*

Hospital Revenue and Expense:

The comparative operating expenses of the hospital, excluding corporation salaries, new equipment, research expenses and various miscellaneous expenses, appear as follows:

	<i>This Year</i>	<i>Last Year</i>	<i>Increase or Decrease</i>
Administrative.....	\$13,559.84	\$11,040.61	\$2,519.23
General House and Property..	5,491.89	3,929.21	1,562.68
Housekeeping.....	10,363.46	13,155.50	2,792.04*
Laundry.....	2,381.43	2,589.37	207.94*
Kitchen and Dining Room....	3,155.94	3,259.72	103.78*
Provisions.....	8,227.88	11,636.75	3,408.87*
Care of Patients.....	17,643.91	20,279.95	2,636.04*
Photography and X-Ray.....	391.35	265.92	125.43
Warren Laboratory.....	4,234.90	.....	4,234.90
Totals.....	<u>\$65,450.60</u>	<u>\$66,157.03</u>	<u>\$706.43*</u>

* *Decrease.*

The foregoing expenses were incurred in connection with 5,466 in-patient days and 7,331 out-patient treatments. Using the basis of five out-patient treatments being equivalent to one in-patient day, the out-patient treatments represent 1,466 patient days, with a total of 6,932 patient days. This represents an average cost of \$9.44 per patient day, against \$8.40 for the previous year.

	<i>This Year</i>	<i>Last Year</i>	<i>Increase or Decrease</i>
Out-Patient Treatments.....	<u>7,331</u>	<u>6,824</u>	<u>507</u>
Out-Patient Days.....	1,466	1,365	101
In-Patient Days.....	<u>5,466</u>	<u>6,511</u>	<u>1,045*</u>
Total Patient Days.....	<u>6,932</u>	<u>7,876</u>	<u>944*</u>
Operating Costs.....	<u>\$65,450.60</u>	<u>\$66,157.03</u>	<u>\$706.43*</u>
Average Cost, Patient Days..	9.44	8.40	1.04

* *Decrease.*

The following income was received as a result of operations reflected by these expenses:

	<i>This Year</i>	<i>Last Year</i>	<i>Increase or Decrease</i>
Board and Care:			
Ward Patients.....	\$8,039.42	\$7,791.16	\$248.26
Private Room Patients.....	5,270.00	4,850.35	419.65
Out-Patient Fees and Dress- ings.....	5,096.75	3,966.80	1,129.95
Special Nursing.....	695.00	560.00	135.00
Board of Special Nurses....	309.00	239.00	70.00
	<u>\$19,410.17</u>	<u>\$17,407.31</u>	<u>\$2,002.86</u>
Radium Treatments.....	\$22,657.45	\$16,683.00	\$5,974.45
Operations.....	3,143.00	3,675.00	532.00*
Totals.....	<u>\$25,800.45</u>	<u>\$20,358.00</u>	<u>\$5,442.45</u>

With a decrease of 16 per cent in the number of in-patient days, the income from ward and private room patients has increased five per cent. With an increase of seven per cent in the number of out-patient visits, there has been an increase of income from out-patient fees and dressings of approximately 29 per cent.

The above income applied against the related operating costs represents a reduction of 30 per cent for the current year, as compared to 26 per cent for the preceding year.

Bad debts and allowances in the sum of \$2,245.40 were charged against the operations for the year, as against \$724.80 for the preceding year.

The reserve for bad debts of \$220 set up last year was allowed to stand as an offset against any open accounts receivable which later may be found to be uncollectable.

As a result of our supervision and examination of the books and records of the Treasurer of the Cancer Commission of Harvard University.

WE HEREBY CERTIFY:

1. That the balance of cash of the Treasurer of the Commission and at the hospital June 30, 1922, amounting to \$5,532.81, was on hand as of that date.
2. That the cash shown to have been received at the hospital has been accounted for and that we have seen satisfactory evidence of payment for all disbursements made by the Treasurer of the Commission.

3. That the following Exhibits A, B and C are in accordance with the books of the hospital and statements submitted by the Assistant Comptroller of Harvard University.

Very truly yours,

COOLEY & MARVIN Co.

EXHIBIT A

THE CANCER COMMISSION OF HARVARD UNIVERSITY

Statement of Funds for the Year ended June 30, 1922

	June 30, 1921			For year ended June 30, 1922		Increase or Decrease in Funds	June 30, 1922			1922-1923 Income Estimated at 4.75%
	Principal	Income	Total Funds	Receipts	Disbursements		Principal	Income	Total Funds	
Francis Bartlett Free Bed Fund	\$5,000.00	.....	\$5,000.00	\$275.00*	\$275.00	.....	\$5,000.00	.....	\$5,000.00	\$237.50
Memorial Cancer Hospital:										
Endowment Fund	109,351.15	.....	109,351.15	6,014.30*	13,410.81	\$7,396.51 \$	101,954.64	.....	101,954.64	4,937.84
New Laboratory Fund	118,354.56	.....	118,354.56	16,750.00†	135,891.95	118,354.56 \$	.....	.....	.....	.....
				787.39*	.....				
T. Jefferson Coolidge Fund for Cancer Research	2,000.00	.....	2,000.00	110.00*	110.00	.....	2,000.00	.....	2,000.00	95.00
Caroline Brewer Croft Fund	92,025.00	.....	92,025.00	5,061.37*	5,061.37	.....	92,025.00	.....	92,025.00	4,371.19
William Endicott Fund	25,000.00	.....	25,000.00	1,375.00*	1,375.00	.....	25,000.00	.....	25,000.00	1,187.50
L. C. Fenno Fund, Treatment by Light Rays	20,000.00	.....	20,000.00	1,100.00*	1,100.00	.....	20,000.00	.....	20,000.00	950.00
Lawrence Carteret Fenno Free Bed Fund	5,000.00	.....	5,000.00	275.00*	275.00	.....	5,000.00	.....	5,000.00	237.50
Franklin H. Hooper Free Bed Fund	5,000.00	.....	5,000.00	275.00*	275.00	.....	5,000.00	.....	5,000.00	237.50
Amos Lawrence Hopkins Free Bed Fund	5,000.00	.....	5,000.00	275.00*	275.00	.....	5,000.00	.....	5,000.00	237.50
Marion D. Lockwood Memorial Fund	50,728.58	.....	50,728.58	2,790.09*	2,790.09	.....	50,728.58	.....	50,728.58	2,409.60
Julia M. Moseley Fund	23,250.00	.....	23,250.00	875.00*	875.00	.....	23,250.00	.....	23,250.00	1,104.39
George von L. Meyer Bequest	2,500.00	.....	2,500.00	137.50*	137.50	.....	2,500.00	.....	2,500.00	118.75
Clara Endicott Payson Free Bed Fund	5,000.00	.....	5,000.00	275.00*	275.00	.....	5,000.00	.....	5,000.00	237.50
Emily J. Proctor Gift	2,500.51	\$246.03	2,746.54	151.08*	.....	151.08	2,500.51	\$397.11	2,897.62	137.64
Gifts for Research in Genetics	320.00	.....	320.00	.....	.....	.....	320.00	.....	320.00	15.20
F. D. Moulton Gift for Social Service Worker	375.21	.....	375.21	25.00†	.....	25.00	400.21	.....	400.21	19.01
James Ewing Mears Bequest	9,295.01	.....	9,295.01	511.23*	511.23	.....	9,295.01	.....	9,295.01	441.51
Collis P. Huntington Memorial Hospital — New Endowment	500.00	.....	500.00	27.50*	27.50	.....	500.00	.....	500.00	23.75
Joseph R. De Lamar Fund, New Laboratory . . . . .	.....	.....	.....	13,316.12†	13,316.12	.....	.....	.....	.....	.....
Flattery Research Fund . . . . .	.....	.....	.....	584.06||	584.06	.....	.....	.....	.....	.....
Dudley B. Fay Memorial . . . . .	.....	.....	.....	55.77*	55.77	.....	.....	.....	.....	.....
				2,000.00†	.....	2,000.00	2,000.00	.....	2,000.00	95.00
David Pingree . . . . .	.....	.....	.....	3,000.00†	1,000.00	2,000.00	2,000.00	.....	2,000.00	.....
Gifts for Current Expenses . . . . .	.....	.....	.....	33,115.00†	33,115.00	.....	.....	.....	.....	.....
Gifts for Service of Technician . . . . .	.....	.....	.....	1,980.00†	1,980.00	.....	.....	.....	.....	.....
Gifts for Salaries . . . . .	.....	.....	.....	1,000.00†	1,000.00	.....	.....	.....	.....	.....
Commonwealth of Massachusetts . . . . .	.....	.....	.....	3,750.00†	3,750.00	.....	.....	.....	.....	.....
	\$481,200.02	\$246.03	\$481,446.05	\$95,891.41	\$217,466.40	\$121,574.99\$	\$359,473.95	\$397.11	\$359,871.06	\$17,093.88

Summary of Receipts: * Interest \$20,371.23 † Gifts \$71,186.12 || Grant from Medical School \$584.06 ‡ State Income \$3,750.00 Total \$95,891.41

EXHIBIT B
THE CANCER
COMMISSION OF HARVARD UNIVERSITY
COMBINED STATEMENT OF ASSETS
AND LIABILITIES

As at July 1, 1921 and June 30, 1922

ASSETS			
	July 1, 1921	June 30, 1922	Increase or Decrease
Cash in Office.....	\$75.00	\$75.00	
Cash in Bank.....	7,936.04	5,457.81	\$2,478.23*
Accounts Receivable.....	10,660.14	13,433.23	2,773.09
Funds, Exhibit A.....	481,446.05	359,871.06	121,574.99*
Total Assets.....	<u>\$500,117.23</u>	<u>\$378,837.10</u>	<u>\$121,280.13*</u>
LIABILITIES			
Vouchers Payable.....	\$87.08	\$3,749.28	\$3,662.20
Reserve for Bad Debts....	220.00	220.00	.....
Net Available Funds.....	499,810.15	374,867.82	124,942.33*†
Total Liabilities.....	<u>\$500,117.23</u>	<u>\$378,837.10</u>	<u>\$121,280.13*</u>

* Decrease.

† See Exhibit C.

EXHIBIT

THE CANCER COMMISSION
Statement of Receipts and Disbursements

DISBURSEMENTS

Operating Expenses:

Administration.....	\$13,559.84
Care of Patients.....	17,643.91
Chemical Laboratory.....	58.07
General House and Property.....	5,491.89
Housekeeping.....	10,363.46
Hospital Laboratory.....	141.40
Kitchen and Dining Room.....	3,155.94
Laundry.....	2,381.43
Physical Laboratory A.....	3,557.13
Physical Laboratory B.....	10,422.32
Provisions.....	8,227.88
State Diagnosis.....	678.89
Warren Laboratory.....	4,234.90
X-Ray Photography.....	391.35

Miscellaneous:

Traveling Expense.....	\$583.30
Publications.....	766.25
Christmas Expense.....	71.72
Sundry.....	71.70

	\$1,492.97	
Total Operating.....		\$81,801.38

Other Expense:

Bad Debts and Allowances.....	\$2,245.40	
Adjustment of Accounts Receivable.....	89.96	
Adjustment of Accounts Payable.....	15.57	
Total Other.....		\$2,350.93

Corporation Salaries.....	18,258.33
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Total Expenses.....		\$102,410.64
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New Equipment:

General House and Property.....	\$1,542.21	
Hospital Laboratory.....	10.00	
Warren Laboratory.....	6,873.41	
X-Ray Photography.....	7,719.53	
		16,145.15

Paid on New Laboratory.....	149,208.07
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Total Disbursements.....		\$267,763.86
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C

OF HARVARD UNIVERSITY

For the Year ended June 30, 1922

RECEIPTS

Hospital Revenue:

Board and Care:

Ward Patients	\$8,039.42	
Private Room Patients	5,270.00	
Out-Patients Fees and Dressings	5,096.75	
Radium Treatments	22,657.45	
Operations	3,143.00	
Care of Patients Etherized	355.00	
Special Nursing	695.00	
Board of Special Nurses	309.00	
Use of Radium	50.00	
Donations	25.00	
Sale of Supplies and Expenses Refunded	737.81	
Interest on Bank Balance	328.30	
Miscellaneous Income	223.39	
Total Hospital Revenue		\$46,930.12

Other Income:

Fay Memorial Fund	\$2,000.00	
		\$2,000.00

For Current Expenses:

Annual Subscriptions	\$39,120.00*	
Commonwealth of Massachusetts	3,750.00	
Interest on Capital Funds	19,583.84	
Grant from Medical School	584.06	
		63,037.90

For New Laboratory:

De Lamar Fund	\$13,316.12	
New Laboratory Fund	16,750.00	
Interest on the Same	787.39	
		30,853.51

Total Other Income	95,891.41
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Total Receipts	\$142,821.53
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Excess of Disbursements over Receipts:

Exhibit B	124,942.33
	<u>\$267,763.86</u>

* This total includes one subscription of \$1,000 for the expenses of the year 1922-23, and one of \$1,000 for those of the year 1923-24.

LIST OF COMMUNICATIONS

CANCER COMMISSION OF HARVARD UNIVERSITY

1. Statistics of Cancer — W. F. Whitney.
Boston Society of Medical Sciences, Journal, Vol. 5, No. 2, p. 33.
October 23, 1900.
2. On the Etiology of Cancer — E. H. Nichols.
Boston Society of Medical Sciences, Journal, Vol. 5, No. 2, pp. 34-58.
October 23, 1900.
3. Report of the Presence of "Plimmer's Bodies" in Carcinomatous Tissue
— R. B. Greenough.
Boston Society of Medical Sciences, Journal, Vol. 5, No. 2, pp. 59-62.
October 23, 1900.
4. Tumors and Sporozoa of Fishes — E. E. Tyzzer.
Boston Society of Medical Sciences, Journal, Vol. 5, No. 2, pp. 63-68.
October 23, 1900.
5. The Reconstruction of a Nodule of Cancer — E. A. Locke.
Boston Society of Medical Sciences, Journal, Vol. 5, No. 2, pp. 69-71.
October 23, 1900.
6. Report of Culture Experiments made with Carcinomatous Tissue, 1889-
1900 — Oscar Richardson.
Boston Society of Medical Sciences, Journal, Vol. 5, No. 2, pp. 72-80.
October 23, 1900.
7. Coccidium Infection of the Rabbit's Liver — E. E. Tyzzer.
Journal of Medical Research, Vol. 7, No. 3, pp. 235-254. April, 1902.
8. Molluscum Contagiosum — Charles J. White and W. H. Robey, Jr.
Journal of Medical Research, Vol. 7, No. 3, pp. 255-277. April, 1902.
9. Culture Experiments with Malignant Tumors — Oscar Richardson.
Journal of Medical Research, Vol. 7, No. 3, pp. 278-279. April, 1902.
10. Four Pathogenic *Torulæ* (Blastomycetes) — Joseph D. Weis.
Journal of Medical Research, Vol. 7, No. 3, pp. 280-311. April, 1902.
11. The Relation of Blastomycetes to Cancer — E. H. Nichols.
Journal of Medical Research, Vol. 7, No. 3, pp. 312-359. April, 1902.
12. Cell Inclusions in Cancer and in Non-cancerous Tissue — R. B. Greenough.
Journal of Medical Research, Vol. 7, No. 3, pp. 360-380. April, 1902.
13. A Contribution to the Classification of Tumors — F. B. Mallory.
Journal of Medical Research, Vol. 13, No. 2, pp. 113-136. January,
1905.
14. On the Nature of the Cell Inclusions of Cancer — R. B. Greenough.
Journal of Medical Research, Vol. 13, No. 2, pp. 137-166. January,
1905.
15. The Effects of the Roentgen Ray upon Cancer — Robert H. Vose and
Walter C. Howe.
Journal of Medical Research, Vol. 13, No. 2, pp. 167-185. January
1905.
16. Implantation of Tissue and Its Relation to Cancer — E. H. Nichols.
Journal of Medical Research, Vol. 13, No. 2, pp. 187-232. January,
1905.
17. The Inoculable Tumors in Mice — E. E. Tyzzer.
Journal of Medical Research, Vol. 17, No. 2, pp. 137-153. November,
1907.
18. A Series of Twenty Spontaneous Tumors in Mice, with the Accompanying
Pathological Changes and the Results of the Inoculation of Certain
of These Tumors into Normal Mice — E. E. Tyzzer.

- Journal of Medical Research, Vol. 17, No. 2, pp. 155-157. November, 1907.
19. A Study of Heredity in Relation to the Development of Tumors in Mice — E. E. Tyzzer.
Journal of Medical Research, Vol. 17, No. 2, pp. 199-211. November, 1907.
 20. A Transmissible Cancer of the Rat Considered from the Standpoint of Immunity — F. P. Gay.
Journal of Medical Research, Vol. 20, No. 1, pp. 175-201. January, 1909.
 21. The Lesions of the Skin and the Tumor Formations in Xeroderma Pigmentosum — W. T. Councilman and G. B. Magrath.
Journal of Medical Research, Vol. 21, No. 3, pp. 331-355. October, 1909.
 22. The Surgical Treatment of X-ray Carcinoma and Other Severe X-ray Lesions based upon an Analysis of Forty-Seven Cases — C. A. Porter.
Journal of Medical Research, Vol. 21, No. 3, pp. 357-413. October, 1909.
 23. The Pathological Histology of Chronic X-ray Dermatitis and Early X-ray Carcinoma — S. B. Wolbach.
Journal of Medical Research, Vol. 21, No. 3, pp. 415-449. October, 1909.
 24. Chronic Pancreatitis with Tumor-like Nodules in the Cat — Thomas Ordway.
Journal of Medical Research, Vol. 21, No. 3, pp. 451-458. October, 1909.
 25. Tumors in the Common Fowl — E. E. Tyzzer and Thomas Ordway.
Journal of Medical Research, Vol. 21, No. 3, pp. 459-477. October, 1909.
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I give, devise and bequeath unto the President and Fellows of Harvard College, the sum of \$. to be used for the work of the Cancer Commission of Harvard University.

In case the Commission should decide at any time that the cause and treatment of cancer had been sufficiently determined I authorize them to devote this bequest to some other unsolved problem of medicine.

